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PROTECTION OF COMMERCE IN WAR, WITH SPECIAL REFERENCE TO THE CAPE ROUTE.

By Commander W. C. CRUTCHLEY, R.N.R.

Wednesday, 29th June, 1904.

Colonel Sir H. M. HOZIER, K.C.B., *p.s.c.*, in the Chair.

IN discussing commerce protection, it would, under ordinary circumstances, be one of considerable difficulty, and it would also run to much greater length than will be occupied by this paper; but as I think I know what was in the mind of the Council of this Institution when the request was made to me to undertake the work, it is to a certain extent simplified, and becomes merely a peg upon which to hang an up-to-date discussion of points formerly raised by me on several occasions in this theatre.

Reiteration may be tiresome, but is absolutely necessary if anything is to be done.

There are two ways of dealing with this subject:—1. To treat it in a manner that would appeal to the naval strategist only; the other (in adopting which I think I shall carry out the wish of the Council) is to place before the audience, and, through the medium of the JOURNAL, the public, a brief statement of the condition of the Cape route on any one day in the year under strictly ordinary conditions, and making suggestions that I think would be of value, to leave my audience to draw their own conclusions.

When it was first decided that this paper should be written, it was, to the best of my recollection, early in March last; when the pourparlers were finished, it was approaching the conclusion of that month, and I consequently wrote to the various Steam Shipping Companies employed on the Cape route asking for the position of their various vessels on March 31st. That is how that date came to be selected. There is no reason to suppose or imagine that the vessels at

sea on that date were either in greater or less numbers than they would be on any date in the year that might be selected.

By showing upon a plan the regular vessels engaged in that trade in their approximate positions on that day, the ordinary layman can get some idea of what British commerce at sea means, when he realises that this is only one of our many highways that the great British Navy exists to protect. No attempt has been made to show vessels, either sail or steam, other than regular liners.

At the time these words are being written (April 30th) we have to hand the news of the sinking of the Japanese transport the "Kinshui Maru." That is not the first Japanese merchant-vessel that has been sunk by the Russians; but the conditions under which this has taken place are such as to cause speculation as to what might be the possible fate of a great many of our merchant steamers if attacked by an enemy that had no naval base in the vicinity and no means of taking a captured vessel before a Prize Court. Here it is stated that a certain number of the crew were taken on board the captor; the remainder, who refused to submit, were ruthlessly sent to the bottom. I do not know that I have anything to complain of in this course of procedure. War is a stern matter, and is not to be waged without considerable hardship and suffering. Why I mention this now is to ask whether we have any reasonable assumption that a Power, determined upon wrecking the commerce of this country, would hesitate to sink vessels and their crews with them. There has been, up to the present time, considerable discussion as to what would be the fate of merchantmen in a naval war; our doubts are now to a certain extent set at rest, for we see that Russia has upon three occasions, when opportunity offered, deliberately sunk every merchant-vessel belonging to the enemy with which they have come in contact. This, it is true, is following the example of the "Alabama"; but it may be urged, with some degree of reason, that that vessel was a forlorn hope sent out to sink, burn, and destroy, with no base and no opportunity of submitting her captures to a Prize Court. In the present case no consideration of that nature can be urged. The Russian Navy is, upon paper, and should be, a powerful force; it cannot claim indulgence upon the score of weakness. We must conclude that its actions are based upon the irrevocable decision of a great Power as to the manner in which it will elect to wage war upon the sea, and we find that, acting against an enemy that at the commencement of the war was of greatly inferior naval strength, that mighty Power Russia has elected to inaugurate, so far as merchant-vessels are concerned, a war of annihilation. In the case of the "Kinshui Maru," there is no evidence to suggest that it was not possible to escort that vessel into Vladivostok Harbour. What is the moral to be drawn from this, so far as we ourselves are concerned? I venture to say it is, that if any naval Power decides upon hostilities with Great Britain, it will be, so far as our Mercantile Marine is concerned, a war of extermination. It will be the gambler's throw, and all will be staked upon the endeavour to strike the Empire in its most vital part—its great and world-wide commerce carried in shipping that amounts to half the tonnage of the world. I think that there will be no endeavour, at all events in the early days of war, to take vessels before Prize Courts. We have in the Russian procedure the indication of what may be expected in the future, and I, for one, am thankful that we have once again been given a chance, before it is too late, to read in unmistakable characters the handwriting on the wall.

Take the route under consideration, and then decide upon the likelihood of any attempt being made to transport vessels on this route before a Prize Court. Let us take the great Powers of the world only in considering this matter. First of all, the United States. I infinitely prefer not to touch upon that, as hostilities between ourselves and our kinsmen are not to be contemplated. Next consider France, our most ancient enemy on the sea, with whom we have fought for ages, and have had full experience of their ability as seamen and their qualities as enemies. The recent rapprochement between them and ourselves can be welcomed by none more gladly than by seamen that have tested a foeman worthy of their steel; but unless it were to be assumed that the British Navy had entirely lost the command of the sea, it would not be possible for France or French cruisers to take their prizes before a Prize Court. The matter of capture might perhaps be easy, but not the necessary escort into port. There remain now but Russia and Germany. The question of taking prizes into Russian ports can hardly be seriously discussed, for one thing, they would have to be escorted through the North Sea, which would certainly mean the recapture by ourselves; and the same remarks apply with equal strength to Germany.

On this route, however, we must not lose sight of the fact that the Germans have a large tract of country in the Cameroons, and if they made an effective naval base where they have taken possession, it would give them a very great advantage if they determined upon harassing our commerce, and could protect that base in the early days of war. It does not, however, exist at present. The Frenchmen at Goree and the Germans at Cameroons are the two nations that have it in their power, at all events at the outbreak of war, to strike at our commerce with very considerable effect. Realising as they would that their opportunities for offence could not last long, the attack in the first place would be made with the greatest energy.

It would indeed be regrettable if one were driven to the deduction that any civilised Power would deliberately torpedo merchant-vessels without giving their crews a chance of escape; but I do hold very strongly that that chance of escape would in all probability consist of half an hour for the crew and passengers to take to the boats, and it might be contended with fair justice that this was conduct necessitated by the urgency for crippling an enemy that was all-powerful at sea. Some may, and doubtless will, argue that the "Kinshui Maru," being a transport, was subject to harder treatment than would be meted to an ordinary merchant steamer. I would reply that precedents are very awkward things.

In the Japan-Chinese war the Japanese sank the "Kow Shing" under perfectly similar conditions to the sinking of the "Kinshui Maru." They were both merchant-vessels in the first place; both were engaged in commerce vital to the enemy, and it would be argued that the suppression of our commerce would be the greatest service that could be rendered by any of the forces of an enemy of this country; therefore, I think that the naval officers of any Power at war with us would be in no hurry to draw nice distinctions. And I should like to emphasise the point, that despite all that anyone may say, I believe that should the opportunity arise, our shipping will be destroyed without mercy.

The indiscriminate sinking of our merchant vessels would probably exert a greater moral effect than any other course of action would

achieve. We saw during the time of the Spanish-American war its effect on the price of wheat in this country. What, in the event of the loss of a dozen ships in one day, would then be the probable price of the loaf in this country? Who could hazard an opinion? There is only one possible solution that would avert panic, and that is an arrangement by which in time of naval war, Government would have made arrangements for taking over the entire food supply of the country, and then issuing it to the people on reasonable terms.

In drawing attention, however, to the Cape route—only one of the happy hunting grounds that the enemy would probably frequent—we have not taken into consideration any possible augmentation of traffic that might arise through bottling tactics being adopted with the Suez Canal. We have recently had two instances of this being attempted: one at Santiago Harbour, the other at Port Arthur. In neither of these cases was it even approximately as easy as it would be to block the Suez Canal. I am not for one instant minimising the advantage of the British position in Egypt and the consequent power it would give us to exercise watchfulness and care with the traffic that passed through the Canal in unsettled times; but it would, I think, be madness were we to shut our eyes to the possibility of interruption with that stream of commerce that is constantly passing to and from the Far East. With the Dardanelles in the possession of a great Power the situation would be still more complicated.

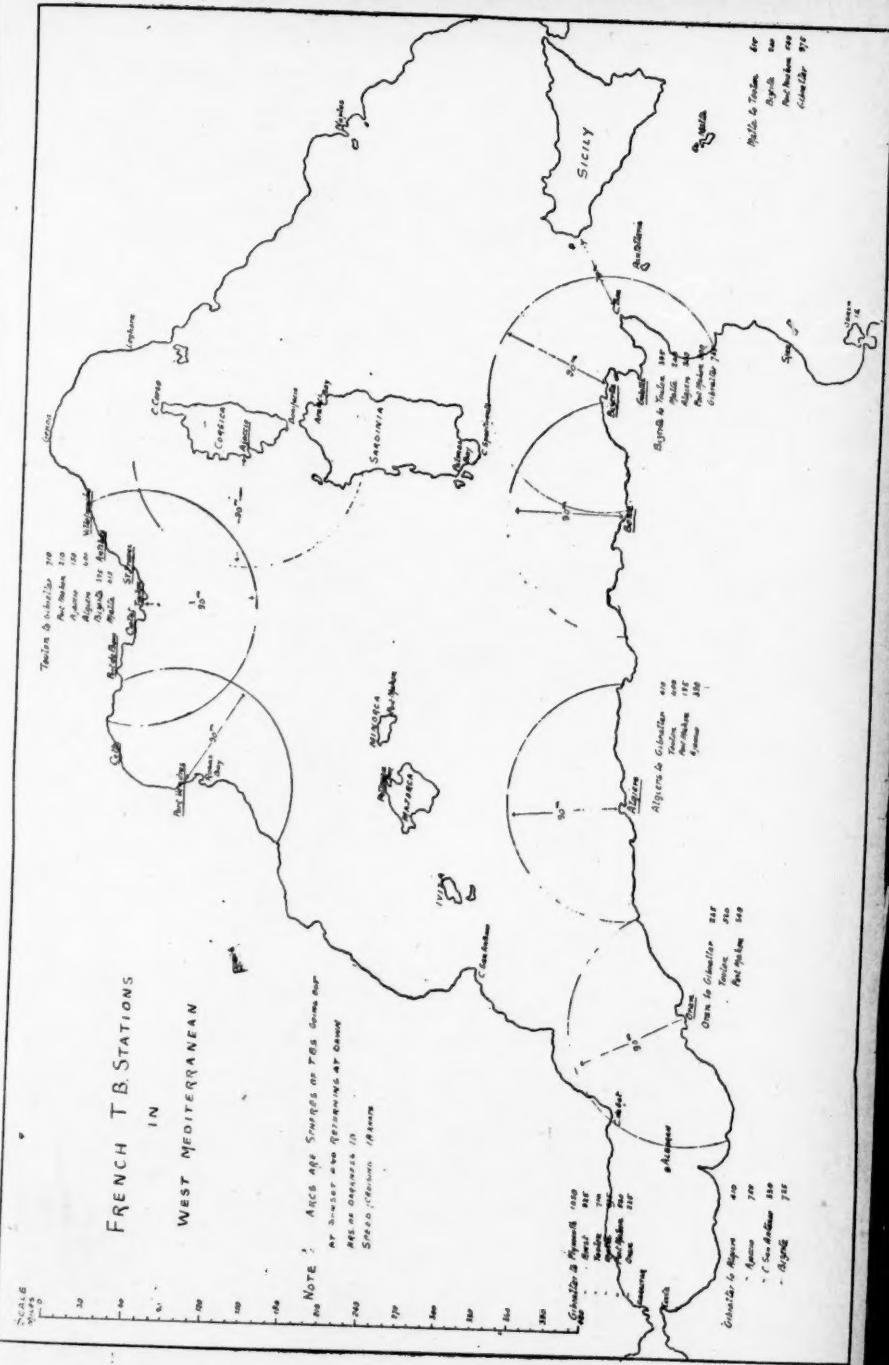
In former papers read by myself in this Institution I have always thought, and my opinion received a considerable amount of backing from competent authority, that the Suez Canal would be blocked in time of warfare. I find myself at the present time somewhat weakening upon this opinion; perhaps the wish that it may be possible to maintain our communications uninterrupted may be father to the thought. But be that as it may, we cannot shirk either the duty or the necessity of contemplating the possibility of inconvenience in this direction, especially when we consider the enormous results that will hang upon it. The more one investigates this matter the more one is confronted with the absolute hopelessness, at all events in the first days of war, of possibly diverting the Suez Canal traffic round the Cape of Good Hope. In days when ships' bunker coal is cut down to its lowest limit, the difficulties in the way of any great divergence would appear to be almost unsurmountable.

Suez Canal Traffic, 1902.—2,165 British ships, tonnage 6,772,911 tons; total for all nations, 3,708 ships, 11,248,413 tons.

H.R.H. Prince Louis of Battenberg stated in 1893 that we could not possibly keep the Suez Canal open in war time. It is obvious that the divergence of a portion only of this traffic would be attended with considerable difficulty, and apart from the question of blocking the canal, there is the risk of torpedo attack on this route that is so clearly outlined in the diagram so kindly lent for this occasion by the R.U.S.I.

In all the operations of modern warfare the supply of fuel is the principal governing factor, consequently in any question which affects the abandonment of the Suez Canal as a trade route, and brings forward the Cape route as an alternative, the first question to be considered is the possibility or otherwise of sufficient coal supply.

FRENCH TB STATIONS
IN
WEST MEDITERRANEAN



From the latest information that I have been able to procure, I find that the stock of coal in Cape Town on 31st March was 21,600 tons, of which quantity 10,000 tons only was steam coal. There were in port on that date 11 sailing and 12 steamers—23 in all. During the course of the South African war, and with the plentiful supply of labour, 6 transports were sometimes coaling at once in Table Bay. It is doubtful whether in the near future this number could be greatly increased, and the power of the port for supply would probably be 2,000 tons daily, as a liberal estimate; this, however, would depend upon whether merchants had had any considerable notice as to possible demands for steam coal, quality and quantity of the local Cape coal being inferior. In dealing with the Cape, however, it would not be fair if, in considering possible resources, we were to deal with Table Bay only.

The advantages of Saldanha Bay would hardly appear to be quite appreciated at the present time. That harbour affords very great facilities for coaling in smooth water, and with extreme ease, from two colliers at a time. If one might venture the suggestion, it would be that the Admiralty might do worse than to verify this statement, and consider the possibilities of this port in conjunction with Simon's Bay.

Durban, however, is a port that, besides possessing a fairly efficient supply of steam coal, offers exceptional facilities for transshipping and doing the ordinary work of steamers with the minimum of inconvenience.

There is now at that port a large output of Colonial coal at a very cheap rate per ton, and every facility is given by the Natal Government for the bunkering of steamers. The supply, moreover, is an always dependable quantity, and as regards quality it is about equal to ordinary North Country coal. The resources of that port at the present time probably would run to 70,000 tons per month, and in an increasing quantity; and I find that for the end of February, 1904, the average depth of high water on the bar was 31 feet.

The harbour authorities at Durban, Natal, are now, moreover, considering very wisely the question of the supply of steam coal.

In the month of February the Agent-General for that Colony was advertising for the supply, erection, and completion of the following plant:—Export coal, to deal with 4,000 tons of coal in 10 hours, to consist of one fixed and two movable appliances to discharge into ships' hatches direct from trucks; also appliances to coal ships at the rate of 200 tons per hour for bunkering coal. This indicates that very considerable progress is being made, and that the port of Durban would be capable of sustaining considerable calls upon its resources. It would serve as an excellent feeder to ports at the Cape, such as Saldanha, Simon's, and Table Bays.

The disability of Durban as the main coaling port on this route would be that vessels after a long run, and with a scanty supply of coal remaining in their bunkers, might find it a little difficult to pull up the last 300 miles of the run up the coast in the teeth of a strong adverse current, and this remark would apply more especially to slow tramp steamers than to the faster class of vessels.

The coaling supplies procurable at East London and Port Elizabeth are of a very meagre nature, and not to be considered as a source of supply.

It would be possible perhaps to supply coal at the rate of 1,000 tons daily at Sierra Leone; that, however, would be but a mere drop

in the ocean compared with the demands that might possibly be made upon it. It is not altogether out of place to state that in this long run between the Cape and Gibraltar there is no dry dock in any English port where ships having suffered accident can possibly be repaired; although the Germans are now sending a floating dock, capable of raising a vessel of 2,000 tons, out to the Cameroons.

I will now refer to the chart reproduced, which shows the positions of the ordinary steamers engaged on the Cape route on 31st March. I have thought it best to make a note, showing the vessels in port at each end; but in addition to this there is to be taken into consideration the amount of tonnage that passes Cape Finisterre day by day.

From the best authority that I can get—that is, the Secretary of Lloyd's—I find that 120,000 tons is a fair amount to be assumed for the vessels passing Cape Finisterre on 31st March.

There are engaged in the Cape trade eight lines of steamers:—

Rennie's ○ 4 vessels in port.

New Zealand Shipping Company + 2 in London.

Aberdeen White Star Line ◇ 2 at Cape Town.

Bucknall Bros. ⊕ 3 at the Cape, 1 in London.

Shaw, Savill and Albion Company □ 2 in London.

Bullard, King & Co. △ 3 in London, 1 at Natal.

Union Castle Line and the ✗ 12 in Home Ports,
7 in Cape Ports.

Harrison Line H 2 in Home Ports.

The symbols on the map show the vessels that are at sea in their approximate positions on 31st March, and although these positions may not be absolutely accurate, they are sufficiently correct for the purpose of this paper, and show very clearly the actual steam vessels that are in what may be termed regular employment on this route. It takes no account of what may be termed irregular steam traffic or the sailing-ships. From this it will be seen that there are 44 vessels that are susceptible of attack by improvised cruisers on the outbreak of war. I submit that any steps that can be taken to give them greater security is worth the most attentive consideration on the part of our rulers. The ships in port at either end of the route show these that would be available to form convoy.

I do not imagine or encourage the fallacy that attacks on commerce can decide naval supremacy; that always did and probably always will remain with the battle-ship. My object is to call attention to the inconvenience, to say the least of it, that would be caused by a well-planned and determined attack upon our merchant vessels, such as might be delivered by the cruisers and the mercantile auxiliaries of a hostile Power in the early days of war, before our battle-ships and cruisers had had time to sweep the sea and to do their police work.

Into the question of my assumption that we have sufficient naval power to make this clearance, I do not here enter. There are many that hold the view that our naval strength is insufficient; it is assumed, however, that we have it, and I now deal solely with the measures that in my view would in some measure tend to alleviate the terrible panic that would be almost unavoidable in the early days of a war.

1. The necessity for the State issuing a guarantee that insurance liabilities should be met so far as shipping is concerned. There must be no hesitation in our ships putting to sea to carry on their ordinary avocations. If they are captured, the State must replace them, or it must be done by a common levy on the nation, but the trade must not stand still, neither must it be more interrupted than actual physical necessity demands.

2. To call attention to the value of our mail steamers as a means of disseminating information. Before this advantage can be utilised to its fullest extent it must be in the power of officers commanding squadrons of British war-vessels to know exactly where to find these steamers at sea, hence the necessity, as I have pointed out on former occasions, for mail steamers to pass over certain fixed points which can be varied at the discretion of the naval authorities.

3. The last issue of the International Code of Signals is dated July, 1899. So far as I am aware there is nothing later that concerns the Mercantile Marine. The book itself is a distinct improvement upon anything that has preceded it, inasmuch as it deals to a limited extent with light and sound signals. It actually gives a matter of seven of these signals, and the assumption is that it is considered that those seven signals are as much as the collective intelligence of the Mercantile Marine is capable of receiving for a series of years. I think it is matter for regret that its scope of usefulness is thus limited, but it is only in keeping with ordinary procedure, so far as the Mercantile Marine is concerned. The plan has been, and is, not to recognise a great difficulty and grapple with it, but rather to temporise and put off the evil day until a more convenient season. We have recently had more than one testimony to the necessity that exists for means of better communication between British men-of-war and our merchant vessels. To quote from the *United Service Gazette* of 19th May:—"There is a circular issued by the Secretary of the General Shipowners' Society stating that attention had been called both by the Board of Trade and by the Committee of Lloyd's to reports made by British naval officers pointing out that although his Britannic Majesty's war-ships under these officers' command had made signals by means of the International Code in numerous instances to steamers of the British Mercantile Marine, no notice had usually been taken of such signals by the officers in command of the merchant vessels to which they were made." To quote again from the *Globe* of 20th May:—"It is again accentuated how essential it is that in war time the ships of the mercantile and fighting navies of this country should be able to readily exchange messages by means of flags in the International Code." That is right so far as it goes, but it does not go far enough, for, when all is said and done, flags only serve as a communication for a part of the 24 hours; in the Channel in the winter time there are occasions when there is less than eight hours of daylight, hence the necessity for the adoption of something that will serve both for the light and the dark hours. Lord Charles Beresford has since put this matter forward very strongly.

In my very humble opinion the services of the Mercantile Marine are not utilised in the manner that they might be. We have now in our merchant vessels more than 2,000 Naval Reserve officers, a large proportion of whom have served in men-of-war. They are all, thanks to the existing regulations, more or less acquainted with the usages that obtain on board men-of-war, but, so far as my knowledge serves me,

the question of signalling, which I submit is of primary interest, forms no important part of their general training when doing their drill. I certainly think that it should be so, and that opportunities should be afforded for them to go through, we will say, an elementary signal course. It is certainly necessary, and as we have the pick of the men of the Mercantile Marine in the Naval Reserve it should be quite possible to turn out enough signallers from them to form a leaven in most of our large steamers. It should not be impossible to impart such knowledge of the Morse system of signalling as would be of infinite use to merchant vessels if we found ourselves at war in the near future.

Last, but not least, would I again urge the necessity of encouraging the youth of this country to take to the sea as a calling; in other words, that we should have British seamen for British ships. If all the men in the Mercantile Marine of this country were British, and trained to arms, we should not have one man more than we require to guarantee the freedom of the seas, but the difficulty of grappling with this problem is apparently so great that the official mind is not disposed to make any attempt to overcome the trouble in the first place. In the case of the two recent Committees that have been sitting on this matter, the Admiralty Naval Reserves Committee was, at all events, passively favourable to any working scheme that can be brought forward, although they consider that the expense that would be incurred by training British seamen for the Mercantile Marine would not be compensated for by the advantage we should derive. The Board of Trade Committee, on the other hand, however, in their report have done the cause of advancement positive injury by the lukewarm manner in which they have reported on the question; apparently the many obstacles that stand in the way have caused them to make a report that, I fear, has shelved the question for years. Can a case for conscription be made out until we have at least done all that is humanly possible to strengthen our first and only line of defence—the Navy?

Major STEWART L. MURRAY (late Gordon Highlanders):—I think the very able and interesting lecture to which we have just listened has been delivered at a very opportune moment, because it is not possible for anyone to say what will be the outcome of the present struggle in the Far East, or what will happen there in the course of the next 18 months or so. I think he would be a bold man and a rash man who would venture to prophesy what the grouping of the great Powers will be when the time for settlement arrives. It is, as Clausewitz says, always necessary to take into consideration the state of popular feeling in any hostile nation, and in any nations which may be its possible allies. The state of popular feeling in Germany is, as we know, unfortunately one of hostility to Britain; and the state of popular feeling in France is, as we also know, one of very deep sympathy with Russia, because they regard Russia as having very largely helped them to regain the position in Europe which they forfeited by their downfall in 1870; and also, the French have got an enormous amount of money invested in Russia. Such being the case, it is quite possible—I do not say it is probable, but it is possible—that if at the end of this war Russia should find herself in a very dangerous position, as she may very well do, and should appeal to France *ad misericordiam* for aid, it is quite possible that such a wave of sentiment may sweep over France as will force its Government, on

pain of overthrow, to go to the aid of its old ally. If France should act in that manner, it is also quite possible that Germany may join in also and strike a blow at Britain. We shall then have to face that combination which has so very often been talked about : of three Naval Powers against us. I do not say, of course, that this is what *will* happen ; but I say it is what *may* happen, and, what is more, it may happen in the course of the next year or 18 months. I therefore contend that, as reasonable, practical men, we ought to assume that it *will* happen, and prepare for it. In view of that possibility, what is to happen to our Mediterranean trade? I will not enlarge upon the magnitude of that trade, or of its vital importance to this country, because it is well understood and known by everybody. But the first thing that strikes one in considering this matter is that there are two totally divergent views on it. There is the one school, who maintain that our Mediterranean trade is of such tremendous importance that it must be defended at all hazards, even if we are engaged in war with France. There is another school who maintain that if we are engaged in a naval war with France, it is not, and will not, and cannot, be possible to properly protect our Mediterranean trade. I wish to quote the authority of the Naval Prize Essay for 1904 to back up that argument, because that view is very strongly taken in that essay. It says :—“The Mediterranean is admirably suited to torpedo-boat warfare, and it is France's evident intention to render the Toulon-Corsica-Algiers-Bizerta area as dangerous as possible to hostile fleets; a sure index of this is the large number of torpedo-boats and submarines building at present.” Then from that he goes on to deduce that :—“The Anti-Toulon Fleet would lie W. of Gibraltar, with a Cruiser Squadron of 2 armoured cruisers, 1 first-class protected, 2 second-class, and 2 third-class cruisers, with 6 destroyers watching Toulon”; and he further goes on to say that :—“The Toulon Fleet may remain at its base for some time while the cruisers harass trade, and a torpedo-boat warfare is directed against the British Battle Fleets.” He further goes on :—“As regards trade, *any idea of keeping the Mediterranean route open at the commencement of a Franco-Russian war should be abandoned, and arrangements made for deflecting all trade round the Cape.*” If that view is to be taken as correct, or even as an approximately correct expression of naval opinion, then I say the situation is most serious and grave ; for if it is possible that we may find ourselves at war with France, Russia, and Germany in the course of the next year or 18 months, then it appears probable that we shall find ourselves compelled to deflect our trade round the Cape, whether we like it or not. The lecturer has said that he considers it, as far as he can see, almost hopeless to attempt to do so ; but we should have no option, apparently. Looking at the map which he has exhibited, how on earth is our Mediterranean trade to pass through? How on earth are our slow 8 or 10 knot tramps, in which the greater part of our trade is carried, to pass slowly along in front of Bizerta, Tunis, Oran, Algiers, etc., etc.? This Gold Medal Prize Essay, which I conceive is to be accepted as a fair expression of naval opinion, otherwise it would not have received the gold medal, regards it as absolutely impossible ; we shall have no option but to send it round the Cape. Of course, there are those who say that it could not be done owing to the smaller size and small bunker capacity of the vessels which use the Suez route, and owing to the absence of coaling and docking facilities on the Cape route itself. That seems a thing which may be got over. I should say that part of our preparation, therefore, should be to deal with this matter of the coaling and docking facilities on the

Cape route, and not talk or think about it only, but *do* it. I cannot see what there is to prevent us doing it. It merely means an expenditure of money, which no other nation except ourselves has any objection to spending when necessary. It would be a very small expenditure of public money compared to the great expenditure which foreign nations unhesitatingly adopt in their frontier fortresses, and could not be compared with the expenditure France has made with a view to making her eastern frontier safe, or which Germany has made both on her eastern and western frontiers. No other nation except ourselves grudges the money to make itself safe against all eventualities because of a slight expenditure. In this country it appears to be held that it is sufficient to say a thing will cost money for it to be regarded as impossible. I protest with all my strength against that; it is a view which is not worthy of being held by such a nation as ours. And if it is necessary, as it does seem necessary, that the Cape route should be prepared as an alternative for the Mediterranean, it should be done at once, and should be completed, if possible, within the next 12 months, because at the end of 12 or 18 months we may find ourselves compelled to use it, whether we like it or no. Preparations similar to those which the lecturer has referred to at Durban should be made at one or two other points along the route. This is not an operation which a great nation like ours should shrink from. We should then be "prepared for either fortune." Optimism is all very well *after* every possible precaution has been taken, and every possible preparation made; but optimism is a very dangerous thing if it leads to the neglect of necessary precautions and preparations. Our motto should be, especially with the Eastern outlook so obscure and so menacing: "Prepare for the worst and hope for the best."

Admiral the Hon. Sir EDMUND R. FREMANTLE, G.C.B., C.M.G. (Rear-Admiral of the United Kingdom):—I did not have the opportunity of reading this paper before coming to the lecture, and I consequently feel that any remarks I may make may be somewhat discursive or disjointed. But there are a great many points in the paper which I think are deserving of attention, to which I should like to allude. First of all, the question of sinking merchant-ships is a most important one. It has been stated over and over again, it was stated in the days of the late Admiral Aube and from others on the French side, that they would have no scruples in launching a torpedo against a liner and sinking her. I always thought that that was quite impossible, that the claims of neutrals would be so great, and the objection made to the possibility of torpedoing your friends instead of the enemy would be so great, that that would not be done. But I confess I am a little shaken in my opinion, when I see what has been done recently by Russia, and nobody, apparently, has taken the trouble to make any very strong objection, or at all events, if our Government have made any representations, or the United States Government have made any representations, we are not exactly aware of them. I certainly think that the neutral Powers ought to assert themselves on these occasions. I think that some restriction should be made on so-called belligerent rights. We should support what has been generally the rule in the law of nations, and we should, as far as possible, endeavour to insist that vessels should be taken into a port for adjudication, and not summarily sunk on the high seas. It stands to reason that if you do sink them summarily on the high seas you are making yourself a judge as to what the vessel is, and the particular officers may or may not be very scrupulous as to whether the

vessel really is an enemy. Some discussion has taken place as regards the Suez Canal and its closing. It has been very often stated that it would be to our advantage to close it. I confess I cannot see it; but, at the same time, I am very much of opinion—and I am strengthened in that opinion by the opinion of those officers who have served recently on the Mediterranean station, men like Prince Louis of Battenberg,¹ Sir John Hopkins, and others—that there would be, at all events, extreme difficulty in keeping open the route to the Suez Canal, in passing along the coast of North Africa, with the French torpedo flotillas as we see them on the map on the wall. At the same time, we must recollect that the seas are large—even the Yellow seas are large. Recently the Vladivostok Squadron has shown what can be done in the way of evasion, and it is extremely difficult, really, to stop any traffic which is determined to run a certain amount of risk. I think, therefore, that though certainly the Canal wallahs will probably have to stop, some of the faster vessels will run the risk, and by taking the northern course some distance from the land, may be able to run through. But with regard to the Canal wallahs, I am afraid those vessels are quite incapable of going round the Cape. The lecturer did not go into that question very closely, but I have no doubt that he has given some study to it. It seems to me that those vessels, built as they are almost entirely for the Canal route, with frequent opportunities of coaling, could not go round the Cape; even if we made coal depôts, it would be practically impossible for them to take the route round the Cape. This is a very serious question undoubtedly. The lecturer touched on the question of insurance. I confess I am very much in favour of some sort of system of national insurance. It is a subject on which the Chairman, I am quite sure, could enlighten us very much if he likes. I know that Lloyd's have given some attention to that subject, and that the Government also have given some attention to it. I understand it has been calculated that, taking the average of the whole Napoleonic war, although many ships were lost—frequently even the British Channel was extremely unsafe, notwithstanding our nominal command of the seas—still, it has been found that our percentage of loss due to the enemy has been something like 5 per cent., certainly not more; it is likely, I should think, to be less. The question arises as to whether steamers have increased the risk or decreased the risk. I am inclined to think that, on the whole, they have decreased the risk. I am inclined to think that we might do a great deal more than has been generally supposed in the way of convoying. In former days, with sailing-ships, the ships convoying kept to the windward and looked out for an enemy. If any of the convoy fell to leeward, and if she ran down to make them keep the wind, to carry more sail, or anything of that sort, it was hours perhaps, or even days, before she could get into her proper position to convoy again. That is not so now with steamers. You can run the steamers practically at the same speed, the speed of the slowest ships, I admit; but there are no such things as shifts of wind, and calms, and ships falling away to leeward. Of course, a ship may break

¹I am now informed that I have somewhat misrepresented the views of Prince Louis, now the able Director of Naval Intelligence, as, while he does not underrate the difficulty, he believes that the Mediterranean route can be maintained in case of war, if proper dispositions are made, and British steamers do not skirt the Algerian and Tunisian shores.—E.R.F.

down altogether, but in that case she would be left to her fate. Assuming that to still be the case, that only 5 per cent. is the real risk of war, so far as insurance is concerned, I never can understand why the Government, so as to prevent a panic—because it is acknowledged that the insurance would go up very largely at first—why the Government should not have a small official department in connection with Lloyd's and say: "We will take the war risks; you take the ordinary risks." We will take them at the Government's calculation of, say, 5 per cent. If there is any less loss than that the Government sustains no loss; if the loss is much greater, why, the country benefits, because you have greater security of trade and more ships running the cargoes, which are now so absolutely essential to our very existence. The lecturer touched upon the question of communication with merchant-ships. I think that is a very important matter. We ought to be able to make of our great Mercantile Marine a system of intelligence, so that every one of those passing vessels ought to be able to give us information as to what they have seen, what they know about the enemy, or about your friends. That would be of the greatest value. As it is at present, they do not give us half the information they ought to under proper regulations. I think we are generally inclined to depreciate, at all events in times of peace, the value of intelligence. It appears to me that people do not take the trouble to try and get intelligence. During the China and Japan War I succeeded in getting extremely good intelligence of what was going on. I warned the Admiralty once or twice, against the opinion of many others, as to what was going to take place; they were anxious to know. Twice the *Times* correspondent came from Tientsin on purpose to find me, because he was pleased to say that I was the only person who had any information. I quote that because I think it is quite possible to get information, even with such reticent people as the Japanese; you can find out what is really going to take place if you take the trouble. We have always neglected the whole question of the General Staff; we are neglecting to this day the extreme value of procuring accurate information. We trust that the Food Supply Commission will do good in that respect. There is one word more I should like to say. After all, we are mainly dependent on the strength of the Navy. Sir John Colomb wrote a letter the other day in which he showed that our so-called bloated Estimates of to-day amount after all to only 5½d. per £ of sea trade, as against Germany's 4½d.; United States, 8d.; France, 10½d.; Japan, 1s. 2½d.; and Russia, 2s. Great Britain in 1851 had Naval Estimates of something under 7 millions, but her sea trade then was about 325 millions. In 1901, the latest date which Sir John Colomb got out, our sea trade was 1,400 millions and our Naval Estimates were 33 millions. Great Britain's proportion per £ of sea trade in 1851 came to 4½d., and therefore these enormous Estimates which we hear of are not so very much out of proportion even to the sea trade of the Empire, and I need not say that that is not the whole reason why our Estimates are so large. Under those circumstances, I hope that whatever else we may do, whether we try to get more for our money, which we may do, perhaps; whether we take careful stock of all the directions in which we expend money, and the directions in which we can economise, I hope that, at all events, we shall not grudge the money which is so absolutely necessary for the security of this country. I also hope that, while it may be expended with economy, we shall not allow certain fads which are brought out, first to-day and then to-morrow, to run away with the valuable sums which we ought to send in the very best direction. I trust that something will be done in the Cabinet Committee which will

allow us to advance in a certain direction, systematically and not spasmodically; and I hope that we shall never grudge the amount of money which is absolutely necessary for the security of our commerce and for the very existence of this country.

Commander W. F. CABORNE, C.B., R.N.R.:—With regard to the first point put forward by the lecturer, I quite agree with him that in the event of our being engaged in a naval war, our enemies will do all they can to damage our sea-borne commerce, and I have always held the view that very little respect will be paid to the so-called rights of private property afloat. There is a theory cherished by some people that great leniency will be shown to such of our merchant vessels as are not actually engaged in carrying goods, comprehended in the extremely elastic term contraband of war; but there is frequently a great difference between theory and practice. For instance, only a few short years ago, representatives of the various States assembled at the Hague, upon the initiative of the Sovereign of a great Power, and with much blowing of trumpets it was proclaimed to the world that the object of their meeting was the promotion of arbitration among the nations, and the introduction of brotherly love and universal peace. And yet, such is the irony of fate, we now see the Imperial convener of that Conference locked in a deadly struggle with a gallant and progressive Eastern foe, mainly owing to the action of his own servants. With respect to the proposed nationalisation of the food in this country upon the outbreak of war, we were told by a Labour leader last November, during the discussion of a paper on "Food Stuffs in the Time of War," that when the price of provisions rose much, great numbers of working men would be starving, and that those persons would compel the Government to make what terms it could with the enemy, or, in default of its doing so, they would raise the standard of revolt. In view of the gravity of such a statement, I ventured to suggest, as an extreme and purely temporary measure, until such time as the safe conduct of our food supply was assured, the nationalisation of the provisions then in hand. Coming to the question of the national insurance of shipping, a scheme favoured by the lecturer, and one strongly advocated by the late Vice-Admiral Sir George Tryon and others, no doubt much may be said both for and against the adoption of such a course; but personally I do not consider that the proposal can be brought within the range of practical politics while the present unsatisfactory system of largely manning our merchant-ships with aliens continues. The suggestion that mail steamers in time of war should pass over certain defined but varying points appears to be well worthy of attention, and might, perhaps, be somewhat enlarged in its scope. The next point upon which I wish to touch is the complaint that certain merchant vessels have failed to answer signals made to them by H.M. ships. From the correspondence in the public press I have failed to ascertain the class of vessels the conduct of which has been impugned, or the circumstances under which default was made. There may be various explanations, one of them being that the merchant-ships may have supposed that the men-of-war were signalling to one another; but whatever may be the right one, it is certain that the omission was not the result of ignorance, all officers of the Mercantile Marine being required to pass a satisfactory examination in the use of the Commercial Code of Signals. The use of the semaphore is not altogether unknown in the Mercantile Marine. For instance, on board one P. & O. steamer, with which I am personally acquainted, the master, all his officers, and two quartermasters semaphore well, while they nearly all can make and

take in Morse signals slowly, one of the quartermasters being an adept. However, they are, with one or two exceptions, members of the Royal Naval Reserve. I am informed that the same ability to semaphore and Morse is by no means uncommon on board other mail-steamer. Nevertheless, the suggested general introduction of Morse flash-light signals into the Mercantile Marine bristles with difficulties. No doubt merchant officers are quite capable of learning the Morse system, but without constant practice they would soon become inefficient; and how is the imperative constant practice to be obtained? It is almost needless for me to say that I most heartily join with the lecturer in his desire to see our merchant-ships manned by British seamen¹; but at the same time, I would most certainly not exclude lascars, who, like ourselves, are British subjects. However, before much can be effected in the wished-for direction, it will be necessary to strongly impress upon our fellow-countrymen the danger of the present mode of manning, and also to imbue them with a larger amount of patriotism than they now appear to possess. A popular and favourite fallacy is that all that is good and noble is indigenous to the West, and that it is our duty to stamp upon the East our transcendently civilised ideas; but if from our high moral altitude we condescend to turn our gaze towards the Japanese and note the manner in which those wonderful people have rallied round their Emperor and supported their country in a great crisis, we must, however reluctantly, admit that the West has also much to learn from the East, particularly as regards the right and practical definition of the word patriotism. With respect to the lecturer's remarks upon the subject of conscription, while I have never favoured conscription pure and simple, I have long been of opinion that every young man capable of bearing arms should be liable to enrolment in one of the various armed forces of the Crown for a time. While the overwhelming importance of the Navy to the country will be universally acknowledged, the fact must also be recognised that the British Empire is a world-wide one, and that in order to maintain it intact we have no option but to show the world that in addition to being a great naval Power, we are also a great military Power.

Dr. B. W. GINSBURG (Barrister-at-Law, Inner Temple, and Secretary Royal Statistical Society):—I should like to say a word with regard to what Commander Caborne said. Commander Caborne and Commander Crutchley, from their large experience of the Mercantile Marine, know something of the reason why signals are not noticed at sea by merchant-ships. An officer on the watch has a good deal to do besides merely looking out. Probably there is, beside him, a man also at the wheel and a look-out man, and nobody else on deck, and I do not see exactly who is to make signals in the way which has been suggested in the paper. I do not think it is necessarily ignorance, and I do not think it is necessarily laziness, but it is simply the impossibility, on a vessel in which every man has his work cut out for him, to take on any extra duty of that kind, for which they do not see any immediate advantage in the way of £ s. d. There is one other point to which I should like to refer, namely, the question of the bunkering of vessels which are in the habit of going through the Suez Canal. It does seem to one who is not a sailor that it would be quite possible for vessels which go through the Suez Canal now, if they had to go *via* the Cape, to carry a little less cargo and a

¹ Objections raised by the Chairman in winding up the discussion I have fully dealt with upon previous occasions.—W.F.C.

little more coal. There are ways of altering the arrangement of the ship by which it would be possible to increase the amount of coal which such a vessel could carry. I happen to remember a case in point; it was not of cargo vessels, certainly, but of mail steamers. If I remember rightly, during the time of the Egyptian trouble, the Orient Company, as they were then, discontinued sending their vessels through the Canal, and actually did send them out to Australia by the Cape route. What was possible on one occasion, and with one important line of steamers, would, it seems, be equally possible on another occasion, and with equally important steamers.

The CHAIRMAN (Colonel Sir H. M. Hozier, K.C.B., *p.s.c.*) :—If no other gentleman wishes to speak, I should like myself to say a word or two upon some of the subjects that have been so ably handled, both by the lecturer himself and by the speakers. I entirely concur with Sir Edmund Fremantle in what he said about the sinking of merchant-ships; but it appears to me that the point which really strikes most of us is not the destruction of private property at sea—that we know must always stand the risk of war—but the destruction of human life so recklessly as appears to be the case when merchant-vessels are torpedoed and sent to the bottom without giving the crews a chance of escaping. I cannot but think myself that when the nations of Europe have, in the cause of humanity, formed conventions for the observance in land wars of the Geneva Cross, that by acting together they might come to some conclusion, and bring some pressure to bear upon belligerents, to ensure that, as far as possible, when it is necessary to sink a ship which cannot be taken into a Prize Court, and the destruction of which, of course, the law of necessity may sometimes demand, that at least some provision should be made for rescuing the unhappy seamen, and not sending them to the bottom without a chance of escaping. There seems to be a certain difference between sinking an ordinary merchant-ship with her crew and sinking a transport full of soldiers. Soldiers, when they are being transported to the seat of war, are as much engaged in belligerent duties as if they were advancing to the front to attack an outpost, and therefore I think there is much more to be said in favour of the course which has been pursued of sinking transports loaded with troops than there is in sinking defenceless merchant-ships when there is nobody on board them except a crew which has to handle and manœuvre the vessel. But there is also another distinction. Although I know very little of maritime matters, it appears to me that it must be much more difficult for a naval officer who has to destroy a vessel to make provision for the rescue of some 600 or 700 or 1,000 soldiers than it would be for him even to take on board his own ship the small crew of merchantmen when a merchant-ship has to be sunk; and therefore I trust that the Powers of Europe will come to some arrangement with all belligerents on behalf of the unhappy sailors of merchantmen not engaged in any hostile operations when it is necessary for a naval officer to destroy their vessel. It seems to me that even in the present day, when men-of-war are very much encumbered with machinery and very much hampered for room, that the comparatively few hands which are employed in working a merchant-vessel might almost always be taken on board a man-of-war when she destroys a merchant-vessel, until the time arrives when it is possible for her to put them on shore at some place where they will get food and supplies, and not be left to starve on a barren island. The lecturer and Major Murray have brought under our notice a subject to which both have given considerable attention, namely, the question of the Government

taking up some mode of securing the food supply of the population in time of war. That is a very important subject. We all know that the subject has attracted the attention of His Majesty's Government and of various Departments of the Government—I believe especially of the Admiralty. We all know that a Royal Commission on Food Supply has been sitting and taking most valuable evidence for a long time. I do not know what has occurred before that Commission, but from what I see in the papers, and from what occasionally is dropped by some of its members, I am perfectly convinced that that Commission is fully alive to all the needs of the case, and that it has taken the opinion of the greatest experts in the country, and also of skilful and renowned naval officers, as well as others who could throw any light upon the subject. Therefore I think we may with confidence look forward to the report of that Commission as embodying the best opinion that can be formed upon this very important subject. Until that Commission reports, it seems to me that private individuals can do little, except, of course, retain the liberty which every private individual has of expressing his own views and his own conclusions. The question raised as to changing the Suez Canal route to the Cape route is a very difficult and very important one. With the limited knowledge in my possession I do not think that an enemy would find it so very easy to block the Suez Canal route. We must remember that an enemy depends as much as we do ourselves on the supplies of coal, supplies of food, supplies of water, and supplies of ammunition, and that unless he is within easy reach of his naval base it might be difficult for him to lie outside a port like Aden and block the whole of the entrance of the Suez Canal. But this is a question entirely for the naval strategist, and I am perfectly convinced that at no time within my recollection—and that extends over a considerable number of years—has more care, more thought, or more intelligence, been devoted at the Admiralty to an endeavour to solve all these problems than there is at the present time. I know nothing of what goes on in the Admiralty; but sometimes in my position matters have come to my knowledge which show me how the tendency of work in the Admiralty is going, and I am perfectly convinced that in this matter of the Suez Canal route we mercantile men may, with thorough confidence, rely on the decision arrived at by the Navy. There are, looking at it purely from a commercial point of view, great difficulties, to my mind, in the adoption of the Cape route. Not only is there the difficulty to which the lecturer referred, namely, the difficulty of coal supply, but we must remember that vessels are specially built to go through the Mediterranean, the Suez Canal, and the Indian Ocean, and are perhaps not equally well-calculated to stand the stormy seas that rage round the coast of Africa. Therefore it is not only a question of saying at a moment's notice that they will not go through the Suez Canal but go by the Cape route, but it is a question whether our ship-owners could trust their ships to the Cape route. Then there is another important question. We must, in case of necessity, feed our garrisons in India and the East with troops, and it may be a matter of vital necessity that those troops should be hurried out through the Suez Canal, and avoid the waste of time which would be involved by their going round the Cape. I think for these reasons we may in this case also with the utmost confidence leave the solution of the question in the hands of the naval officers who are always at the disposal of His Majesty's Government. Admiral Fremantle has touched on a question which, to me, bristles with difficulties, namely, the question of national insurance. I belong to an association which is supposed to know something about the insurance of

ships and cargoes, and this question, as he says, has been very carefully considered. But the best and cleverest men in the insurance world—and there are clever men in that profession—have not been able to see light, or to lay down any scheme by which this system could be perfectly carried out. I think the Admiral went as near it as anybody has done, in suggesting that Lloyd's should take the maritime risks and that the country should take the war risks; but even in that there are considerable difficulties. I am given to understand that this matter is also being very carefully considered by the Commission on Food Supply. Of course, the Commissioners have the advantage of having evidence from everybody; they will have the advantage of having evidence from leading underwriters, from the experts of the Treasury, and from all the other Departments, and from the naval officers who look at the strategical view of the question; and I am perfectly certain that in this respect, too, we may rely with considerable confidence on whatever result may be arrived at by the Royal Commission. I think when that Commission makes its report it will probably be one of the most valuable reports that has ever been issued, and it will give us all, both naval officers, the men who are the suppliers of food, underwriters, insurance companies, and everybody else, much food for reflection. The lecturer has brought under your notice a subject with which I have something to do, and that is the question of signalling. Lloyd's has the control and management of the commercial signalling stations on the coast of the country, and we find that in some cases it is very difficult to get merchant-vessels to pay attention to signals. We have also lately had brought under our notice the importance that it must be in case of war that merchant-vessels should be able to communicate freely and easily with men-of-war, both in order to obtain orders from the men-of-war and to supply information as to what they may have observed on their passages. I am sorry to say that in both directions there is a considerable difficulty. We have found a considerable difficulty in signalling being properly and efficiently conducted by merchantmen. I do not think myself it is at all due to any fault on the part of the officers of the Mercantile Marine. As Commander Caborne has pointed out, all officers of the Mercantile Marine must pass in signalling before they can obtain their certificates. Therefore there are always on board a merchantman some men who are quite competent to read signals and to make signals; but, as Dr. Ginsburg pointed out, there is no doubt about it, that our merchantmen are often so short-handed that it is very difficult to spare men to make the signals. When a vessel is coming into harbour or near harbour every man is required to do necessary work, and they cannot be spared to make signals. In the same way, when a vessel is out at sea, all the crew are below except those who it is absolutely necessary should be on deck. Those men have their allotted duties to carry out, and it is very difficult for them to be sent away to get flags to run up signals, or to read signals. Some vessels are, perhaps, not as well equipped with telescopes and signalling flags as might be desired. It seems to me that the only practical solution of the difficulty would be by somebody, either the Government or some association, giving certain prizes or certain allowances in return for signals made. I think if there was anything to be got out of it the men of the merchant service would find ways of making the signals; but unless a man has some inducement it is very difficult to persuade him to do what he looks upon as extra work without any remuneration or reward. As to night signalling, I am glad to say that we already see a great reform in that respect; we are gradually extending our night signalling at our signal stations, and there is no doubt that

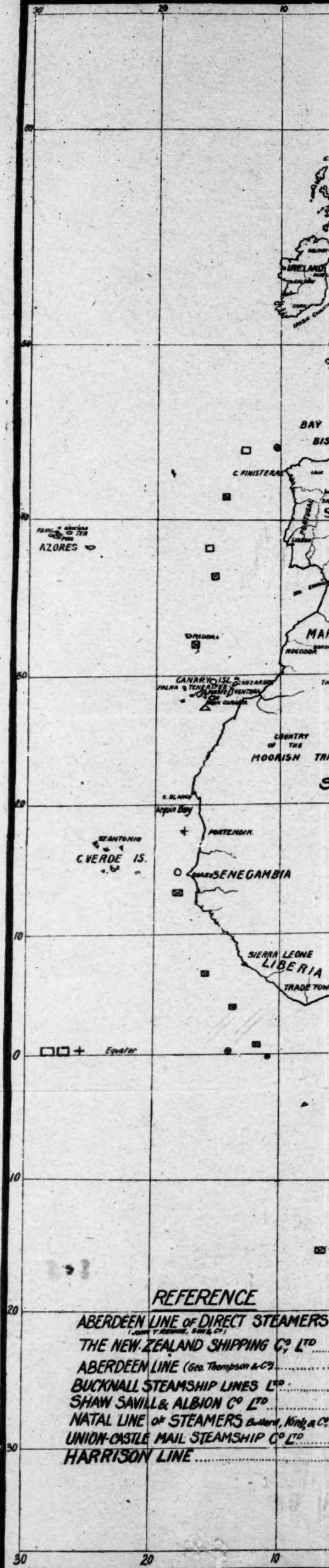
many more vessels are gradually taking up the means of signalling at night by flashing lamps than has hitherto been the case. As has been pointed out very ably in the lecture, at certain times at sea in this climate, if you do not have night signalling you might almost practically have no signalling at all, because if vessels are coming near port or near land, it is just at that time they ought to make their signals, and it is at that time that their owner wants to communicate orders to them. Within the last few days, in fact, I may say within the last few hours, one of my assistants has invented a system of electric flashing lamps, which has hardly been sufficiently tested yet; but, so far as it has been tested, we have hopes of its facilitating night signalling very materially, and I hope before long we shall be able to report to the proper authorities that we have a means which will make night signalling much more easy than it has been up to the present time. But there is one reform in signalling which I venture to mention now, namely, that a great many people think—and, I am rather inclined to think, justly—that flag signalling might almost be abolished. Flags are very difficult to read under certain circumstances. If there is a calm they will not fly out; if the wind is blowing straight towards the flag the flag blows out, and you cannot read it; and I think that what the Navy have adopted at their signal stations is superior to any flag signalling, viz., the ordinary semaphore. I cannot but think that the Mercantile Marine at the signal stations, which, for commercial purposes, communicate with the Mercantile Marine on the coasts of the United Kingdom and other countries, might much more advantageously adopt semaphoric signalling than continue to use flag signals. There is a great inclination amongst the signal-men to prefer the flags—they look prettier, and make a station smart with the flags blowing out; but for practical purposes I am inclined to think that we shall soon have to give up flag signalling and take to semaphoric signalling. If so, I think, then, the semaphore might be used on board merchantmen much more easily than flag signals are used at present. It will make it easier for the crews to signal, because they will not have then to send away for the flags; the semaphore will be there, and will be used at a moment's notice without any trouble. Indeed, I have seen young officers of the Navy able to semaphore with their hands very often quite as well as they do with the semaphore, and I do not see why merchantmen's crews should not be taught in the same manner, and without going to the actual semaphore, communicate at short distances in that way. The question of British seamen on British ships is one we all wish to see thoroughly adopted; but I think we must remember that there is one person to be consulted in this matter, and on him we ought not to be too hard, namely, the shipowner. Why should the shipowner be more bound to employ Britons in ships than the owners of the Carlton or Savoy Hotels? If we go to those hotels we find we are not waited on by Britons. We do not know the reason exactly; but all over the country, wherever you go, you find at any hotels that Britons are not waiting on you. Why do people give up that very lucrative employment, which employs a great number of men, and hand it over without word to the foreigner? It is whispered that the reason is that the foreigner is more temperate in his habit than the Briton; and I believe officers in command of merchant-vessels will often prefer to take a foreigner, especially a Scandinavian, than they will a Briton, because the Briton has an unhappy desire always to stimulate his energies with abundant alcohol. That is one of the great misfortunes of our race. The shipowner is doing commercial work for the purpose of commercial results, and it is hardly right and just that he should be

expected to sacrifice himself and his property in a way that no other business or professional man in the country is expected to do. We should all, of course, like to see nothing but British men in British ships; but I am afraid until there is some reform in the manners of some of the classes of our countrymen, it is a result which will not be very easily attained. With these remarks I have trespassed already too long on your attention, and I shall therefore now ask Commander Crutchley to be good enough to make any remarks which he wishes to make to terminate a most interesting lecture.

Commander W. C. CRUTCHLEY, in reply, said:—I am much obliged to you, Sir, and to the other gentlemen who have taken part in the discussion. There are few points that require answering. The first is as to the capability of the ships which usually travel in the Mediterranean and through the Canal to go round the Cape with safety. You may perhaps remember that at the time of the Boer War many of the Canal ships were employed as transports, and made successful voyages to the Cape and Natal. I do not think the objection holds. With regard to your remark, Sir, that the small crews carried by vessels could be taken on board a man-of-war, I fear that in any attempts on our commerce, our passenger vessels would not be spared any more than the smaller vessels would. This paper was no argument for a divergence from the Suez Canal route, but it simply pointed out what would happen if we were ever compelled to take to the Cape route owing to the Suez Canal being blocked. Then, Sir, you spoke on the question of British seamen. My remarks were intended as supplementary to those I have made on previous occasions as to the necessity for the State training of merchant seamen. As to the shipowner employing them, I would point out that no great industry in this country is free from responsibility so far as the employés are concerned, whether it be mine owners, manufacturers, or anyone else; and I hold that, considering the importance of the Mercantile Marine to this country, it is essential that ships should come more under Government care than perhaps any other great industry. With regard to the British seaman being addicted to drink, that is a remark I have often heard. I can only be sorry that that opinion gains ground. It is not my experience that he is worse than anyone else in this respect; but I think we must remember when we talk about the British sailors being addicted to drink that they are our own countrymen, and that if they are addicted to drink it is because of their bad early training, and that is all the more reason why we should endeavour to remedy it. I beg to thank you.

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THE SICK HORSE IN PEACE AND WAR.

*By Lieutenant-Colonel J. A. NUNN, C.I.E., D.S.O.,
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Tuesday, 15th November, 1904.

The Right Hon. the Earl of DONOUGHMORE, Under-Secretary of State
for War, in the Chair.

WHEN I was first asked by your Secretary to read a paper before the members of the Royal United Service Institution I was somewhat at a loss to find a subject, as unfortunately the matter of Army horses has of late years been prominently before the public, and thinking that it was played out I commenced one on the camel for military purposes. A little reflection, however, showed me that this was a creature in which a limited number only had an interest, and that although but little is known about him, it was best for me to stick to the horse.

Although much paper and ink have been used up in connection with the horse and the South African war, all that has been said and written has been about his selection and purchase as a remount and his feeding and management when in health. On these matters I refrain from touching, as the majority of you know, or, at all events, think you know, as much and more than I do. What I propose to discuss is the best, quickest, and cheapest way of making the Army horse fit for work again after the soldier has, either from ill-luck or ill-management, rendered him *hors de combat*.

There has been a certain amount of controversy as to who is the best qualified to select horses for the Army, and who is best qualified as to the direction of their management in health, military and civil ideas differing, but it is generally conceded that when sick or incapacitated his care should devolve on a veterinary surgeon till such time as he is again restored to usefulness. To use a homely simile, the housewife, when her tin kettle has a hole in it, seeks out a professional gentleman called a tinker, who, by his skill, restores it to usefulness. In many cases the good dame flatters herself that she is a first-rate judge of tin kettles and their management, and indeed may go so far as to inform her professional adviser that she is quite as capable of mending them as he is, but, singular to say, she carefully refrains from experimenting on her own property. I have noticed the same as regards Army horses, but not with other animals, such as oxen and swine, or, indeed, horses that are private property.

In early times, in the case of human beings the barber who shaved them acted as surgeon, and with horses the blacksmith who shod them. The first arrangement is a matter of bygone history, but, unfortu-

nately for the horse, the latter notion still lingers in England. How it can prevail it is hard to say, for to my mind it is as reasonable to expect the man who makes the soldier's boots to be qualified to treat him in sickness, as the man who makes the horse's shoes to be able to treat him. Both the bootmaker and the blacksmith are artisans—skilful and excellent workmen if you will—but nothing more.

The history of veterinary science is one of some interest, and no doubt goes back to remote antiquity, but it is from the Greeks that we obtain the first authentic information, and in the writings of Hippocrates 465 to 460 B.C., mention is made of some very clear and lucid observations on comparative pathology.

Dioscorides of Coristus, one of the earliest anatomists, studied the subject on animals, as, indeed, was done up to comparatively modern times, on account of religious prejudices regarding the dissection of the human body.

The early Romans appear to have known little if anything about veterinary medicine until after the conquest of Greece, the first mention being by Varro, "De Re Rustica," 128 to 116 B.C., but in the third century it seems to have been recognised, to have been regularly practised, and have had a literature of its own, and we find that veterinary practitioners were part of the Roman Army, *Mulomedici Veterinarii*. The most celebrated was Apsyrtus, of Bithynia, who, in 322 A.D., accompanied Constantine on his campaign against the Sarmatians. Even in the light of the 20th century he appears to have been a keen observer, recognising the contagious nature of many diseases, and recommending isolation and segregation for their prevention. He also made many sound observations on diseases of horses' limbs and their treatment, some of which are in use even to the present day, such as the use of hot and cold water, splints for fractures, and sutures for wounds. Another Roman veterinary surgeon whose name has been handed down is Hierocles, who has left some valuable notes on Hygiene and the Training of Horses.

In the Middle Ages veterinary medicine received much attention in Italy and Spain, particularly in the latter country, and at the end of the 15th century the first work in German on it was published at Augsburg ("Pferdearzneibuchlein"), and from this time on numerous treatises are to be found, which, although under the light of modern science are ridiculous, nevertheless, as a whole, show that the authors were observant men endowed with much shrewd common-sense.

England appears to have been behind the times, the first book that has been published, as far as I am aware of, being Blundeville's, in 1566, which, although only a compilation from foreign sources, contains many original observations. At this time comparative anatomy began to be studied, Volcher Koyter publishing one on the horse at Nuremberg in 1573, and Copho on that of the pig, with some original remarks on the lymphatic vessels of that animal. In 1594, Jehon Hervard, a Frenchman, commenced a work on the bones of the horse, but he did not complete it.

In 1598, Carlo Ruini published at Bologna a remarkable work that retained its popularity for 150 years, ran through many editions, and was translated into both French and German. "*Dell'anatomia e dell'infirmata del cavallo e suoi Remedii*." Ruini's description of the anatomy of the horse is excellent, and indeed in parts cannot be surpassed.

In 1664, Solleysel published the book "Veritable Perfaict Mareschal," which was translated into many languages, amongst others, English, by Sir William Hope in 1696, under the title of the "Compleat Horseman," but the most notable of the early English writers is Gibson, who, in 1719, published "The Farrier's New Guide," and in 1721 "A Method of Dieting Horses" and a treatise on "The Disease of the Horse." Although only intended for artists, Stubb's "Anatomy of the Horse," 1766, must be mentioned. The author was a well-known animal painter, and he undertook the task of producing a correct description of the horse's anatomical proportions from actual dissection of the body placed in the position assumed by the animal during life. He was many years finishing the work, which is illustrated by a series of magnificent copperplates that for accuracy have never been surpassed, and the publication of which did much to promote the advancement of veterinary science.

These early writers were self-taught men, who recorded their own observations and were constantly groping about in the dark, and, furthermore, much of their writings consisted of matters relating to stable management, breaking, breeding, etc., and it was not till the establishment of veterinary schools, giving systematic courses of instruction, that the dawn of veterinary science can be said to have commenced.

The first school was established in France by Bourgelat, at Lyons, in 1761, followed by the famous one at Alfort, near Paris, in 1766, and a little time after by a third Government one at Toulouse. The benefits derived from these institutions led other countries to imitate France—viz., Austria, with one at Vienna, under the active patronage of the Empress Maria Theresa, and Prussia, at Berlin; in fact, nearly every country in Europe opened national veterinary schools, with the exception of Great Britain, which to this day is the only one in which not a penny of Government support is given. No doubt the schools of France and Germany were founded as much with the object of training veterinary surgeons for the Army as for civil life.

The London Veterinary College was founded at St. Pancras in 1792 by M. Charles Vial St. Bel, a Frenchman, under the patronage of the Odiham Agricultural Society, and was supported by private subscription. It at once gained the public confidence, and enjoyed great popularity. St. Bel died in 1793, and a difficulty arose in finding a successor to him; finally two medical men, Coleman and Moorcroft, were appointed joint principals.

Moorcroft only remained a short time at the college; he accepted an appointment under the East India Company, and organised and founded the Bengal Stud Department. He travelled extensively over Northern India, Cashmere, and Afghanistan, and was murdered in 1819 in Thibet, where he had gone to purchase Turkoman stallions for breeding purposes.

Coleman remained at the college, and died in 1839, and since then schools have been founded in different parts of the kingdom—viz., Edinburgh, Glasgow, Dublin, and Liverpool, in which latter town a new departure has been made, insomuch as the Veterinary School is a faculty of the Liverpool University.

In 1844 the Royal College of Veterinary Surgeons, the examining body, which must be carefully distinguished from the Veterinary Colleges or teaching schools, obtained its first charter of incorporation. This body administers the internal discipline of the profession,

examines candidates from the schools, and grants diplomas, which are protected by Section 16, and Sub-Sections 1 and 2 Section 17, of the Veterinary Surgeons Act of 1881, 44 and 45 Victoria, Chapter 62, which runs as follows:—

16. If after the passing of this Act any person not being a fellow or a member of the Royal College of Veterinary Surgeons takes or uses any name, title, addition, or description, by means of initials or letters placed after his name, or otherwise, stating or implying that he is a fellow or a member of the Royal College of Veterinary Surgeons, he shall be liable to a fine not exceeding twenty pounds.
17. (1) If after the thirty-first day of December, One Thousand eight hundred and eighty-three, any person, other than a person who for the time being is on the Register of Veterinary Surgeons, or who at the time of the passing of this Act held the Veterinary Certificate of the Highland and Agricultural Society of Scotland, takes or uses the title of Veterinary Surgeon or Veterinary Practitioner, or any name, title, addition, or description, stating that he is a Veterinary Surgeon or a Practitioner of Veterinary Surgery or of any branch thereof, or is specially qualified to practise the same, he shall be liable to a fine not exceeding twenty pounds.
 (2) From and after the same day a person other than as in this section mentioned shall not be entitled to recover in any court any fee or charge for performing any veterinary operation, or for giving any veterinary attendance or advice, or for acting in any manner as a Veterinary Surgeon or Veterinary Practitioner, or for practising in any case veterinary surgery, or any branch thereof.

In 1876, by a Royal charter, it was authorised to grant a higher degree of fellowship to members of five years' standing and who had passed a severe examination. The graduates of the Royal College of Veterinary Surgeons according to the register of 1904 number 3,374, of whom 259 are Fellows.

In consequence of the enormous losses amongst Army horses, the Government about the end of the eighteenth century determined to provide them with proper medical treatment, and a committee of general officers was assembled to consider the question. As a result of their deliberations an order was issued, dated 24th May, 1796, in which it was laid down that a person who had been properly educated at the Veterinary College should be appointed veterinary surgeon to each cavalry regiment.

The first appears to be a Mr. John Ship, who was posted to the 11th Light Dragoons (now 11th Hussars) in June of that year, but in the following August Professor Coleman was appointed Principal Veterinary Surgeon of the Cavalry and Senior Veterinary Surgeon to the Ordnance, although he still retained his position as Principal of the London Veterinary College. His duties were to nominate candidates for commissions, to inspect all cavalry horses when called upon to do so, to act as consultant with regimental veterinary surgeons

when required, and keep them posted up in the latest discoveries and advancements. He also held a contract to supply all the necessary medicines and instruments.

The value of the step became at once apparent. Glanders, of which military stables were hotbeds, became in a very short time extinct through the introduction of a proper and rational system of hygiene, and the death-rate within less than two years diminished by 50 per cent. Coleman also introduced a rational system of shoeing with even better results, and by 1802 there was a qualified veterinary surgeon with each cavalry regiment, besides the Royal Artillery and the Royal Waggon Corps. A report issued in 1809 by the Commissioner of Military Inquiry on the Army Veterinary Surgeons, says:—"Their appointment had been productive of much benefit to the Service from their superior information, and from the great improvement made in the shoeing since the veterinary system was instituted."

Up to 1881 the veterinary surgeon was a regimental officer, but in that year the service was organised into a special department, all regimental appointments, excepting those of the Life Guards and Royal Horse Guards being abolished, the officers being placed on one seniority list and roster for foreign service, and a special uniform adopted. Veterinary surgeons were simply attached to cavalry regiments and other units as their services might be required, and in England this system still remains in force.

The state of things is anomalous, and gives rise to endless confusion. The veterinary surgeon is only attached to the unit, but does not belong to it, whereas the men who are his assistants and act as nurses and dressers do, and for their services he must apply to the officer commanding the unit, as these men are looked on first as soldiers, and can be taken for all sorts of military duty. I am sorry to have to say so, but I have in the course of my career more than once distinctly traced deaths through the attendant to whom I had given instructions being taken away from a sick animal to perform some other duty, such as standing sentry or carrying coals, and the case being neglected the result was fatal.

In time of peace this system works indifferently well, but in war it has invariably broken down, and in my opinion always will do so, the latest example being in South Africa. Hospitals for the treatment of the sick and dépôts for the rest and recovery of convalescents have to be formed, and for the attendants for the service of these units have to be indentured upon.

Now it is not everyone either soldier or civilian who is by temperament or by nature fitted to nurse a sick animal, and those that are are men with intelligence and of special ability, and naturally the commanding officer of a unit is not going to send away his best men just at a moment when above all others he requires them. The result "as I am painfully aware," is that on service all the most undesirable men, both morally and physically, are drafted into the veterinary hospital for the unfortunate veterinary surgeon and almost more unfortunate patients to put up with as best they can.

Many of these men, even if willing and capable of instruction, are ignorant of the very rudiments of nursing, and others, as I have said, are undesirables sent to get rid of them out of their units, and these have to be taught amid all the pressure of a campaign. Furthermore, there is a considerable amount of clerical work, accounts and corres-

pondence in connection with a hospital for which the veterinary surgeon is responsible. In the regulations clerks are shown as being allowed, but again these are men provided temporarily on loan by some unit and likely to be withdrawn at any moment. These accounts and correspondence are somewhat complicated, and my experience is that the men sent to me as clerks are ignorant about them, and it has ended in my having to do them myself, unless I was ready to meet deficiencies out of my own pocket. This I have never been ready to do, and never will be, and the result has been that my time has been chiefly taken up doing the work of a 30s. a week clerk instead of my legitimate professional duties, whatever time there was to spare being devoted to trying to teach dressers and attendants the work they should have been fully acquainted with. To make matters worse, as soon as these men began to be of some use they were liable to be recalled to their units, a fresh lot sent, and the whole of the heart-breaking process again gone through *de novo*.

The home system being recognised in India as being so bad was done away with in 1884 and the station hospital one introduced. In that country in every cantonment there is a central or general hospital for all animals, with branch ones where necessary, and to these horses and other animals are sent when sick, treatment in the regimental lines being prohibited. In fact, when a horse becomes useless and unfit for work the troop or battery commander is relieved of the burden of him, and he gets rid of him till he recovers again. The central hospital is furnished with the necessary appliances, and a proper staff of veterinary assistants, dressers, grooms, and clerks, under the control of the veterinary officer, who is responsible for them and the general care and welfare of the sick, and in addition he acts as sanitary officer, making an inspection of each unit in his district at regular intervals bringing matters that he thinks require looking into to the notice of the proper authorities.

The system in India has worked well, and stood the test of 20 years and several campaigns—Chitral, Tirah, Somaliland, and South Africa, to which country two Field Veterinary Hospitals were sent from India fully equipped in every respect. These were universally praised, and two more asked for, and, indeed, it is not too much to say that at one critical period of the war they saved the situation. They proved to be capable of a large expansion, each section, of which a complete hospital contains two, being enlarged till it practically became another whole one in itself. The Indian Field Hospitals I should say are chiefly manned by natives specially engaged and instructed for the purpose, forming part of the veterinary establishment.

A word must be said to explain what is meant by an Indian veterinary assistant. These men are natives who have received a training at one of the Indian veterinary colleges which exist at Bombay, Calcutta, and Lahore. The course of instruction lasts for three years, and three stiff examinations have to be passed before the certificate of veterinary assistant can be obtained. At Bombay and Calcutta the lectures and instruction are given in English; at the Lahore College, of which I was principal for eight years, in Hindustani, and before a pupil was admitted as a student he had to pass an educational examination. I insisted on the middle school standard of the Punjab Educational Department, consisting of reading and writing from dictation, grammar, and simple rules of arithmetic up to fractions, all in the vernacular.

The students are civilians sent to the colleges by the various local authorities, such as district boards, municipal committees, authorities in native States, and soldiers from the Native Army, specially selected and sent by the Military Department to be educated. Many of the civilians are employed, under the Indian Civil Veterinary Department, in the work of suppressing cattle diseases, and others obtain employment all over the East, and some enlist in the Indian Army. I have sent men to China, Borneo, Straits Settlements, Persia, and East Africa, and a large number, "over a hundred," were, I believe, employed during the war in South Africa.

I should like it to be fully understood that these men are not horse-shoers, as the Eastern, wiser than we are, separates the two callings; in fact, in the social scale of village life the *salutrie* is looked upon as a superior, the *nail bund*, or blacksmith, as an inferior service. Some years ago an ill-advised attempt was made to combine the two callings, but, as need hardly be pointed out to anyone acquainted with India, it was foredoomed to failure. These veterinary assistants are valuable servants of the State in their proper position, and are competent to attend to and treat sick animals under professional supervision. Unfortunately attempts have been made to use them instead of veterinary officers, leaving them to act on their own initiative and responsibility, and without exception the results have been disastrous.

Having given this outline of the Indian Station Veterinary Hospital, I will now briefly touch on what I consider should be the plan adopted in this country and the colonies.

I look on the injured horse that is not able to do his work as an encumbrance and a nuisance to the unit both in peace and war, and arrangements should be made to put him out of sight till he is cured, another workable animal being at once supplied in his stead. The arrangement should be such as to insure the cure of the animal in the shortest space of time, for not only are his services required urgently in time of war, but he is also costing money every day he is non-effective—"eating his head off." As has been proved over and over again, it is impossible to treat any but the most trivial injuries on service in the lines of a unit, and, furthermore, that if the animal at once receives attention he may be back at his duty in a few days, whereas, if neglected, he may be incapacitated for weeks if he has not to be destroyed, and there are some ghastly examples of this from sore backs in South Africa. My contention therefore is this, that every horse on service that is incapacitated from carrying his rider or drawing his load should be in a hospital, and his place should be filled up at once with a workable animal.

This system is in force in the Japanese Army; an article describing it and the *etappen* system of working their transport that appeared in the *Times* of 26th August, is well worth careful study. Their loss up to date appears to have been only 6 per cent., a painful contrast to the hundreds of horses sacrificed in South Africa, where one regiment alone expended 3,750 horses in 30 months, or a horse for every 3½ miles travelled over.—*Vide* article on "The Wear and Tear of Horses during the South African War," by Lieutenant A. S. Head. *Journal of Comparative Pathology and Therapeutics*. Vol. XVI, p. 299. 1903.

The system of appointing a veterinary officer to each cavalry regiment or unit is wasteful in the extreme, for, as I have pointed out, on service the condition of things is such that he cannot treat a sick animal if there is anything serious the matter with him, and the

performance of an operation in the lines of a regiment in the field is almost out of the question. A veterinary surgeon as sanitary officer to a collection of units, and to determine what disabled animals should be sent to the Field Hospital, is, in my experience, sufficient in the fighting line; the place their services are required and are useful is in the rear, from where, in cases of urgency, such as after a general engagement, assistance can be despatched to the front.

In time of peace the saving in equipment alone would be considerable, one set of apparatus only being necessary, whereas now a separate one is required for each unit hospital. On the matter of efficiency and the welfare of the patients it is needless to enter, it must be obvious to anyone that skilled nursing must be better than the present makeshift arrangement.

In time of peace all animals should be sent to the central hospital that require any special or prolonged treatment, such as operation cases, the branch ones only being used for trivial or emergent ones, or in the somewhat rare event of it being impossible to move the patient. It should be under the charge of a senior veterinary officer with one or more juniors, and should be provided with the necessary *personnel* of the Army Veterinary Corps men, comprising clerks, compounders, dressers, packers, cooks, servants, blacksmiths, and artificers, etc., together with the necessary surgical equipment and apparatus.

These men would form the nucleus of a Field Veterinary Hospital on mobilisation, *their place being taken by others on the Reserve*, and would accompany it on service. The field equipment should be kept ready and stored near at hand, and the senior officer who would accompany the hospital into the field be held responsible for its up-keep and efficiency. The Indian plan is that the equipment is laid down in every detail and kept in readiness. What, if I may use the term, are "technical" stores, such as medicines, instruments, and special apparatus that require a specially skilled person to look after them, being stored in the hospital under the custody of the veterinary officer; the ordinary military articles, such as tents, picket ropes, etc., being in charge of the department responsible for such things, but obtainable at once on requisition, together with the necessary transport. This plan has stood the test of time, and an Indian hospital has been placed on the train complete in all its details in less than 36 hours after the order to mobilise has been given.

The number of veterinary officers in South Africa during the war was only 42, although every available one was sent there; indeed, at one period there were only 13 left in the United Kingdom. These proved to be utterly inadequate to cope with the situation, and were supplemented by 281 civil practitioners, in addition to about 70 others employed in purchasing remounts, embarking horses, etc., so that from first to last about 350 extra men were engaged in one duty or another. I give these figures to show the necessity of taking steps to form a reserve, as at present there is none in existence, with the exception of a few retired officers whose services could be utilised, but from physical unfitness and other causes these are very limited in number.

In the Auxiliary Forces there are 82 veterinary officers, most of whom have a considerable knowledge of military routine, and whose services, if properly organised, would be of the greatest value, many of them being men of high ability and standing in their profession. Of course, some in an emergency would not be available, as they would be required with their own corps, but a large number would be.

I also think that an effort should be made to form a Volunteer Veterinary Corps from the students of the different veterinary colleges, officered by their own professors and teachers, like the Volunteer Medical Corps. In the South African War the value of such a body of Auxiliaries would have been incalculable, consisting, as it would, of young, active men with a knowledge of medicine and horse management, and who, being educated, intelligent gentlemen, could be placed in charge of others and in positions of trust and responsibility. A levin of half-a-dozen such in a large hospital would be a godsend, as they could be placed in authority over the subordinates, being given the necessary temporary rank to insure their orders being obeyed.

A company might be easily raised at each veterinary school and trained and exercised at some convenient military centre, which would not only give students an insight into certain practical details of their profession which would be of use to them hereafter, but would no doubt give some a liking for military life, and determine them to adopt it. This alone is worth considering, as at the present moment the Army Veterinary Department is in a depleted condition, and service in it is the reverse of popular in the veterinary profession.

The question of obtaining Veterinary Surgeons for the Army is one that has to be considered, as at the present moment this department is 21 per cent. below its authorised peace establishment, and, as I have shown during the South African War, it had to be increased 8-fold by the engagement of civilian practitioners who, from patriotic motives, came forward and offered their services. They might do so again in an emergency, but this as a source of supply is a precarious one, and in certain cases was not very satisfactory.

There are several causes to account for the lack of candidates for commissions in the Army Veterinary Department. For some years past the veterinary profession has been dissatisfied with the pay prospects and general conditions offered by a military compared to a civil career, few coming forward, and fewer still being the best and most promising students from the colleges, as, in the words of one man, "The Army is not good enough." A new warrant improving the prospects of the veterinary service was brought out in October, 1903, since when there has been a certain number of suitable candidates, and perhaps in the future there may be more; but it is not reasonable to expect that, after many years of neglect, the service will be righted in a few months' time, especially as there is a stumbling-block in the way in the shape of service in India. Most veterinary officers have to pass a very large portion of their time in that country, and in some fashion their pay and allowances are so calculated that the majority of the junior ranks are out of pocket. For instance, a lieutenant in India receives a total emolument of £339 4s., at home £393 10s. 4d.; a captain £381 12s. in India, £446 2s. at home; and so on. This inequality of salary is a very active factor in deterring candidates from coming forward, as it is well known that the pagoda tree has been shaken bare, and that the cost of living is the same as at home.

Whether the future supply of candidates will be sufficient to fill up vacancies is a mute point. The whole course of study has been changed from what it was in bygone days, and before a young man can enter his name on the books of one of the colleges as a veterinary student he must pass an educational examination, the nature and conditions of which will be best understood if I read the extract from the bye-laws of the Royal College of Veterinary Surgeons relating to it.

After enumerating certain universities and other examining bodies, whose certificates will be accepted as equivalent to the matriculation examination, such as Responsions at Oxford, previous examinations at Cambridge, and the matriculation of the London University, the bye-law goes on to say:—

No certificate from the bodies in the foregoing section (IV.), unless it shows that the examination has been conducted by or under the authority of the body granting it, includes all the subjects required by the General Medical Council, and states that all the subjects of examination have been passed in at one time will be accepted.

The subjects to be included in preliminary examinations in general education shall be as follows:—

1. English language, including grammar and composition.
2. Latin, including grammar, translation from specified authors, and translation of passages not taken from such authors.
3. Mathematics, comprising (a) arithmetic; (b) algebra, as far as simple equation: inclusive; (c) geometry, the subject matter of Euclid, Books I., II., and III., with easy deductions.
4. One of the following optional subjects:—
(a) Greek; (b) French; (c) German; (d) Italian;
(e) any other modern language; (f) logic.

In future, except in the cases indicated, no certificate of having passed a preliminary examination in general education will be accepted unless the whole of the subjects included in the preliminary examination required by the General Medical Council have been passed in at the same time.

This educational examination, although not technically, is to all practical purposes up to the standard required by the General Medical Council for registration as a medical student, and in a short time they will be absolutely identical. I put particular stress on this point, viz., that if a boy is sufficiently well educated to become a veterinary student, he can, if he likes, become a medical one, as it has great bearing on the argument I am about to put forward.

Having entered as a student at one of the Veterinary Colleges and paid his fees, a four-year course of study has to be gone through, and an examination passed at the end of each year, failure meaning being put back for about six months. The syllabus of subjects is as follows:—

Syllabus of Subjects for Professional Examinations.

EXAMINATION A.

(At the end of the first year's study.)

ANATOMY OF DOMESTICATED ANIMALS.

Synopsis of Subjects.

BONES.

LIGAMENTS.

JOINTS.

CHEMISTRY AND ELEMENTARY PHYSICS.

Synopsis of Subjects.

ELEMENTARY PHYSICS.—Weight—Elasticity and pressure—Levers—Pulleys—Metric system of weights and measures—Specific gravity—Air-pump—Barometer—Diffusion of gases and liquids—Heat—Expansion—Change of state—Freezing—Boiling—Evaporation—Specific heat—Radiant heat.

INORGANIC CHEMISTRY.—Mixtures—Compounds—Elements—Laws of combination by weight and volume—Atomic theory—Use of symbols and equations—Chemical classification upon physical and chemical data.

Hydrogen—Oxygen—Nitrogen—The halogens—Sulphur—Phosphorus—Carbon—Boron—Silicon—The chief compounds of these elements.

METALS.—The following metals and their most important compounds:—Potassium—Sodium—Barium—Calcium—Magnesium—Zinc—Aluminium—Manganese—Chromium—Iron—Silver—Copper—Lead—Mercury—Arsenic—Antimony—Bismuth.

ORGANIC CHEMISTRY.—General principles of ultimate analysis:—Determination of molecular weights.

Classification—Homologous series.

The chief hydrocarbons, including benzene.

Alcohols—Ethers—Substitution compounds—Compound ethers (so-called)—Phenol.

Aldehyde—The chief acids and their salts.

The fixed oils and fats—Saponification.

The carbo-hydrates—Fermentation.

Cyanogen—Urea.

Alkaloids: a few of the most important.

BIOLOGY, ELEMENTARY ZOOLOGY, AND BOTANY.

*Synopsis of Subjects.***BIOLOGY.****ZOOLOGY.**

1. Notions of General Classification: Sub-kingdoms, Classes, Orders, Species, Races.
2. **INVERTEBRATES:** Characteristics, Classes.
3. **Protozoa:** Amœbæ, Gregarines.
4. **Echinoderms:** Characteristics.
5. **Worms:** Flukes, Tapeworms, &c.
6. **Mollusca:** Characteristics.
7. **Insecta:** Characteristics, Metamorphosis. Examples of useful and deleterious insects.
8. **VERTEBRATES:** Organisation, Skeleton, &c.
9. **Amphibia:** Characteristics, Metamorphosis.
10. **Fishes:** Characteristics.
11. **Reptiles:** Characteristics.
12. **Birds:** Characteristics.
13. **Mammals:** Characteristics. Elementary notions of order.

BOTANY.—PLANTS.

1. Vegetable Kingdom—Difference from Animal Kingdom.
2. Elementary ideas about the Organs and their Functions.
3. Flowering and non-Flowering Plants.
4. Organs of Nutrition—Roots, stem, leaves—Organs of Reproduction — The Flower (calyx, corolla) — Androœcium and gynoœcium—Examples chosen from common or useful plants—The fruit, seed, germination.
5. Non-Flowering Plants — Elementary ideas about Algae and Fungi.
6. Classification (Principles) of Plants—Natural orders, sub-orders, classes, species, &c.
7. Characters of the following natural orders of plants of importance to the veterinary profession.

ANGIOSPERMÆ.—Dicotyledons.

Ranunculaceæ — Papaveraceæ — Cruciferæ — Leguminosæ — Rosaceæ — Umbelliferae — Compositæ — Solanaceæ — Scrophulariaceæ.

Monocotyledons.

Liliaceæ—Cyperaceæ—Gramineæ.

GYMNOSPERMÆ.

Coniferae.

EXAMINATION B.

(At the end of the second year's study.)

ANATOMY OF DOMESTICATED ANIMALS.*Synopsis of Subjects.*

Horse.
Ox.
Sheep.
Pig.
Dog.

HISTOLOGY AND PHYSIOLOGY.*Synopsis of Subjects.***HISTOLOGY.**

The recognition and description of—

Animal tissues and fluids.
Blood—Lymph.
Epithelial tissue.
Connective tissue.
Muscular tissue.
Nervous tissue.

The arrangement of tissues in special organs, or the microscopical structure of parts.

Simple histological methods.

PHYSIOLOGY.

Structural and physical properties of organisms.
 Chemical composition of the animal body.
 Vital characters of the animal body.
 Food.
 The blood.
 Digestion.
 Absorption.
 Circulation.
 Respiration.
 Secretion.
 Excretion.
 Nutrition.
 Animal heat.
 Muscular action.
 Locomotion.
 The nervous system.
 The special senses.
 Reproduction, including lactation.
 Development.

Candidates are expected to be familiar with the characteristic chemical reactions of albumen and sugar, and with the elementary chemical examination of milk, bile, and urine.

STABLE MANAGEMENT AND MANIPULATION OF DOMESTICATED ANIMALS AND PRINCIPLES OF SHOEING.*Synopsis of Subjects.*

Approaching animals.
 Securing animals in stables.
 Handling animals.
 Handling special parts—head, foot, tail, &c.
 Use of twitches, muzzles, rings.
 Grooming—Tools and implements.
 Clothing—Bandaging.
 Clipping—Singeing.
 Halters—Pillar-reins.
 Adjusting saddles, bridles, collars, &c.
 Principles of shoeing.

EXAMINATION C.

(At the end of the third year's study.)

MORBID ANATOMY, PATHOLOGY, AND BACTERIOLOGY.*Synopsis of Subjects.*

Morbid cellular changes.
 Plethora—Anaemia.
 Hypertrophy—Atrophy.
 Hyperæmia.
 Ædema—Dropsy.
 Hæmorrhage.

Inflammation—General phenomena—Changes in blood, changes in tissues—Exudation—Products of inflammation—Varieties of inflammation—Methods of Repair—Effects on special tissues—Effects on special organs.
 Necrosis—Gangrene.
 Thrombosis—Embolism.
 Degenerations:—Albuminoid — Fatty — Colloid — Mucoid — Calcareous—Pigmentary—Gelatinoid—Fibroid.
 Morbid changes in blood:—Qualitative—In relation to pressures.
 Tumours.
 Cysts.
 Fever.
 Septicaemia.
 Pyæmia.
 Specific infections—their cause, local changes, general effects.
 Elementary bacteriology as applied to diseases of domestic animals.

MATERIA MEDICA, PHARMACY, THERAPEUTICS, AND TOXICOLOGY.

Synopsis of Subjects.

Forms in which medicines are used.
 Methods of administration or application.
 Actions and uses of medicines.
 Classification of medicines.
 Special agents—their actions, doses, derivation, preparation, &c.
 Incompatibles.
 Impurities.
 Writing and reading prescriptions.
 Poisons—mineral, vegetable, animal.
 Symptoms of poisoning.
 Antidotes—chemical and physiological.
 Tests.

VETERINARY HYGIENE AND DIETETICS.

Synopsis of Subjects.

Water—Quality, quantity.
 Air—Quality, quantity.
 Food—Grasses, cereals, roots, &c.
 Stables.
 Cowsheds } Construction, aspect.
 Kennels } Ventilation, drainage.
 Pigsties } Fittings.
 Sheep-pens }
 Feeding—General principles, quantities, varieties of foods, preparation and mixing food.
 Grooming horses.
 Milking cows.
 Washing—sheep, dogs.
 “Dipping.”
 General principles of breeding.
 Care of animals during gestation.

The Oral Section to include—

- Recognition of defects in stables.
- Recognition of defects in harness.
- Recognition of defects in forage.
- A general acquaintance with animal conformation, especially as regards the Horse: his Points, Marks, Height, Breed, Colour, Age, Adaptability for work.

EXAMINATION D.

(*At the end of the fourth year's study.*)

PRINCIPLES AND PRACTICE OF VETERINARY MEDICINE.

(Exclusive of Morbid Anatomy and Pathology.)

Synopsis of Subjects.

The Causes of Disease.

Symptoms of Disease.

General Treatment of Disease.

Nomenclature of Disease.

Classification of Disease.

Fevers—their History, Causes, Symptoms, Treatment.

Epizootic Diseases—their Causes, History, Distribution, Methods of Spread, Incubation, Symptoms, Treatment, and Post-mortem appearances.

Specific diseases.

Blood diseases.

Diseases of the Cerebo-spinal System.

Diseases of the Respiratory Organs.

Diseases of the Digestive Organs.

Diseases of the Circulatory Organs.

Diseases of the Urinary Organs.

Diseases of the Generative Organs.

Diseases of the Cutaneous System.

Meat Inspection.

PRINCIPLES AND PRACTICE OF VETERINARY SURGERY.

(Exclusive of Morbid Anatomy and Pathology.)

Synopsis of Subjects.

Pathological conditions—

Inflammation.

Suppuration.

Abscess.

Ulceration.

Gangrene.

Injuries—

Wounds—Incised, Punctured, Lacerated, Fistulous.

Contusions.

Burns and Scalds.

Hæmorrhage.

Sprain.

Tumours.**Injuries and Diseases of—**

Bones, Joints, Muscles and Tendons, Arteries, Veins, Nerves,
Bursæ, Lymphatics, Skin.

Injuries and Diseases of Regions—

Skull, Face, Ear, Eye, Tongue, Teeth, Pharynx, Larynx, Oesophagus, Trachea, Neck, Withers, Back, Tail, Chest, Abdomen, Pelvis, Limbs, Genital Organs, Internal Organs.

Examination as to Soundness.

Operations on the dead body.

Obstetrics.

I have given this somewhat extensive list at length, as my experience is that as a rule the public are utterly ignorant as to the course of study that has to be gone through before admission as a member of the Royal College of Veterinary Surgeons. Only a week or two ago, a gentleman holding a high appointment in the Indian Civil Service consulted me about his son, whom he had intended putting into either the Army or Indian medical services, but had come to the conclusion that the boy was too dull to be able to obtain a medical qualification, and therefore he intended to make him a veterinary surgeon and put him into the Army. On showing him the syllabus I have just read to you, he expressed his surprise, saying he thought the whole thing could be done in 18 months or two years, and also gave his opinion that there was but little difference between it and what was wanted to obtain a medical qualification, except that for the latter the curriculum was one year longer, viz., five instead of four years.

I think most persons who are qualified to judge will agree that if a boy has brains enough to get a veterinary qualification, he has enough to get a medical one.

The matter of expense in entering the two professions is one that requires some notice. Of course, an M.D. degree from a university costs much more than a veterinary diploma; but it must be remembered that there are other registrable medical qualifications, and it would cost very little more, if any at all, to obtain one in Scotland or Ireland than a veterinary one in London, living being cheap in those countries. We therefore now arrive at the fact that if a young man is educated enough and smart enough to obtain a veterinary qualification, that he can obtain a medical one with one year's extra study and a very small extra outlay.

The majority of students who now enter the veterinary profession do so with more or less assured prospects in civil life, and for reasons that are outside the scope of this paper the numbers are not so large as formerly. Some years ago a number of young men, the sons of retired officers, professional men, and such persons, were educated with the sole object of entering the Army Veterinary Department, as it could be done cheaper than any other branch of the military service. Scarcely any preliminary educational tests were required; the course of study only lasted two years, and was not very exacting; but all this has changed, and this class of student is no longer in existence.

It seems to me that the dearth of candidates for commissions in the Army Veterinary Department is simply one of supply and demand.

And if sufficient value is got for time and money expended (I am—whichever way you like to put it—blessed or cursed with an absence of incumbrances), if I had sons, and one of them expressed a wish to enter the Army in a department and suggested the veterinary one, as a business man I should reckon out the cost, and what return would be got for the expenditure of his time and my money.

As I hope I have shown, I would see that with a very little more expenditure of both my son or nephew could become a medical man, and I certainly should advise him to turn his attention to the medical instead of the veterinary service as the most remunerative: the Director-General and Deputy-Director-General getting respectively £2,000 and £1,500 per annum, and other grades in proportion, whereas in the veterinary service the Director-General and Deputy-Director-General receive £1,200 and £800 per annum, and other grades in proportion.

This, gentlemen, is, to my mind, a somewhat difficult problem to overcome, as one branch of the public service outbids the other, and it amounts to the aspirant for military honours saying: "I am sharp enough to be able to enter either the medical or veterinary military service; one will take me a little longer, and perhaps cost me a little more than the other, but the return for my time and money expended is 50 per cent. more in one than the other." I should say that if the young man or his people had an ounce of common-sense in their heads, that there need be no hesitation in saying which horse they will put their money on to.

I must thank you, gentlemen, for the consideration you have shown me and the attention you have given to a somewhat dry and disjointed paper. In the first part I have purposely avoided entering into details and minutiae in the reforms I have suggested; and in the concluding portion I have made no suggestion as to obtaining veterinary surgeons for the Army. My object has been to bring forward a certain general principle, and to get the benefit of your opinions as to a remedy, for, in vulgar parlance, I have come here with the object of sucking your brains.

Lieut.-Colonel T. H. BAYLIS, K.C., M.A. (late 18th Middlesex V.R.C.):—As no one appears to be willing to open the discussion, I venture to make a few remarks on this interesting subject: "The Sick Horse in Peace and War." We all know what the horse is in peace, in the hunting field, the race-course, or in every other domestic capacity. The war-horse is one of the most timid and docile yet most courageous animals. Yet comparatively little is done for him in war. We are all of us acquainted with that beautiful description of the war-horse given in the 39th Chapter of the Book of Job. *The Times* of yesterday contains a statement that the secretary of the Society for the Promotion of Kindness to Animals had an interview with President Loubet in Paris, the object being to extend the Geneva Convention to horses. The secretary of the Society suggested that those who went round on the field of battle to put an end to the miseries of the wounded horses—the farriers—ought to have the protection of the Red Cross, and his suggestion was well received by M. Loubet. This lecture is in the right direction, and we cannot expect everything to be done on the field of battle, but more may be done, and the farriers who go round with pistols to put an end to the sufferings of the wounded horses ought certainly to have the protection of the Red Cross. Colonel Nunn has given us a most interesting history of

the Incorporated Royal College of Veterinary Surgeons and of the veterinary profession, and made suggestions for the future. The lecture will be extremely valuable when it is printed in our JOURNAL. You will bear me out when I say how much we value our horses, and I trust this lecture will tend to promote their greater care both in peace and war.

Major E. R. C. BUTLER, Army Veterinary Department:—I have listened with great pleasure to the paper which has been read by Colonel Nunn. What he has said is absolutely correct from the veterinary surgeon's point of view, and the only heading on which I do not think he dwelt sufficiently was the means that we have in the present day for coping with the care of the enormous number of sick animals which are thrown on the hands of the Veterinary Department in war. I therefore make no apology for drawing your attention to the means which we have, and are adopting at present, and you will be able to judge yourselves whether they are efficient. We have first of all the department to which I have the honour to belong—the Army Veterinary Department—and I might say at once that I am only voicing the officers of the Department when I say that, as a body, we are extremely grateful to the authorities for the interest they have lately taken in us, and for their honest endeavour to give us more suitable terms of service. We are at present 142 in number, 56 at home and 86 abroad. We spend a large portion of our lives abroad, and in some ways it is a good thing for us; it enlarges our minds, and we learn a good deal, and when we come home we are perhaps a little startled to compare the organisation we have left abroad with that which exists here. As regards the present-day organisation of the Army Veterinary Department for war, I need only point out that at every annual recurring manoeuvres it is necessary for veterinary officers to go round and ask some kind-hearted commanding officer to carry the medicines that are wanted for the care of the sick animals, because there is no authorised means of transport laid down. As regards the administration of the Department, I am not qualified to speak, but retirement for age and not being on the Active List do not seem to be any bar to holding its administrative appointments. There does not exist in England, so far as the general body of veterinary officers is aware, a single veterinary hospital properly equipped for service in war. We do not even know if there is any equipment, although I daresay there may be some boxes hidden away in that maze known as Woolwich. We have next the Army Veterinary Corps. It is perhaps hardly fair to criticise this bantling. I can only speak of that detachment of it with which I am personally acquainted, and which belongs to the chief command of the country. Born on the 1st of April last, it at present consists of some 20 farriers and men, volunteers from all branches of the Service, including the infantry. It is housed by twos and threes in the rooms of the nearest infantry battalion. It has no uniform, no equipment, no hospital to work in, and it has not at present the means of cooking its own food. As an organised factor for use in war we can dismiss it. Then we have certain classes which are held for the instruction of officers and farriers, in order that they may be made more useful as regards the care of their horses in war. This is an important matter. I myself ought not to criticise these, since at present I have the honour of directing them. All I can say is that about 100 officers and about 150 farriers pass through these classes every year. The instruction we give them is, as far as the officers are concerned, a course of horsemanship, and includes all the details which are necessary for the care of their horses,

and which keep them fit as long as possible under war conditions. As regards the farriers, we give them instruction which will enable them to be more useful to the veterinary officers under whom they work under the present system, and the instruction is made as thorough as possible. Lastly, orders are issued from time to time (one of which appeared in the last Army Order) to the effect that veterinary officers are to lecture to officers, non-commissioned officers, and men for the purpose of instructing them in the care and treatment of animals. You will also find, if you will refer to Appendix VII., K.R., which relates to the examination of all officers for promotion, that subalterns are required to pass an examination in the diagnosis and treatment of disease in the horse before being promoted to captain. At the present time the Service appears to be suffering, not only in my own department, but generally, from a severe outbreak of lecturing—the symptoms are acute. Teaching—lecturing, at any rate—is to every Englishman a very uncongenial task. Few of us are gifted in that way, and unless some special inducement is held out in order to grind away at this work, the results are in many cases what are popularly supposed to make angels weep. This craze for a smattering of veterinary education, especially in the treatment of disease, appears to be a perfect mania at present. It is not so long ago since I heard of a general officer making his annual inspection spending a not inconsiderable portion of the time in examining young officers on spavin. I do not know what his qualifications were for doing so; but I know, as I happen to have the honour of examining students of our own college, that if I introduced questions of tactics into the subject of pathology my services would be dispensed with. This instruction, if properly organised and properly controlled, might be an excellent thing, but so far as I am aware the Veterinary Department has in no way been consulted in the matter. There is no course or subjects for instruction indicated, there is only a general order that all veterinary officers shall lecture, and on what would not appear to matter. If what I have said is correct—and I believe it to be (I should be glad to hear it all contradicted)—you will see that there is great scope for the improvements which have been pointed out by Colonel Nunn. As a body we, the veterinary officers of the Army, are anxious that we should be allowed to organise ourselves into the best veterinary service in the world. We believe that we are capable of doing it, and doing it ourselves if we are only allowed to. If the Veterinary Department were consulted as to what should best be done for the care of the horses in war, the results would be better than those which have been and will be produced by the present absolute want of system, combined with the idea that every officer should be his own veterinary surgeon, than which no more fallacious idea was ever conceived. If we are permitted to organise such a service, it would not be from want of willingness, and I myself believe it would not be from want of capability to do it if we did not succeed.

Lieut.-Colonel J. A. NUNN, in reply, said:—There have not been many questions asked, but I trust that this small effort of mine will be of some value. Major Butler mentioned that he saw a general officer asking subalterns questions about spavin. Many years ago I was subpoenaed on a horse case. The dispute arose as to whether the animal had a spavin. I really forget whether I said it had or it had not, but it is immaterial. The opposing counsel, I will not mention names, who was well known as a man rather given to bluffing witnesses, got up and asked who I was, and I told him. Then he said: “You say he has a spavin” or “He

has not a spavin"—I forget which—and I answered: "Yes, that is so." He then said: "Do you know what a spavin is?" and I replied: "Yes, I do, and you don't." My client won his case.

The CHAIRMAN (The Right Hon. the Earl of Donoughmore, Under-Secretary of State for War):—I think we have had a very interesting lecture and an equally interesting subsequent discussion upon a very important subject, the importance of which is not always realised outside as much as it should be. To my mind, there are several lessons to be drawn from the paper and the discussion. The first of the lessons which I should like to draw from the discussion this afternoon is in connection with what has been suggested about at once replacing the sick horse with the non-sick horse, and it seems to me especially important that some such system as that should be adopted not only in peace but also in war. The moral of that is this: the extreme importance of the Remount Department and Veterinary Department working hand in glove all the time. Before the war—I am sure there are many people who know this—I believe that whilst the Remount Department was in what I humbly conceive to be its right place, under the Quartermaster-General, the Veterinary Department was under the Adjutant-General, and I cannot imagine any possible ingenuity inventing any system which could more effectively prevent those two departments working hand in glove than such an arrangement as that. I understand that that was done away with almost immediately the war commenced, and I fancy that we are on the right lines now, and I sincerely hope, as I believe, we shall continue so. The second lesson that I would draw from this afternoon's paper and discussion is that we must do something to increase the flow of the pick of the profession into the Army Veterinary Department. Colonel Nunn sketched the obvious difficulties. I confess that I see very little good will be done by a direct attack on those difficulties. The first difficulty seems to be that a very much higher standard of education is now demanded from anybody who wishes to obtain a veterinary certificate than was the case some years ago. Well, I do not think anybody will grumble at that; that may be a difficulty for the moment, as has already been pointed out, but it is not a difficulty that you should do away with by making the standard lighter. Secondly, there is the difficulty that the Royal Army Medical Corps or the medical profession are competing with the veterinary profession. It would be idle to suggest that the remedy is to be found by doing anything that would in any way injure the medical profession. You have to find a remedy, not by tilting against this difficulty, but by getting round it in some way. The third lesson that I draw is that undoubtedly we must go on on the lines that we have begun in forming an Army Veterinary Corps. Nobody in his senses would dream, I think, of asking a doctor to work without a nurse, and yet that is what you have asked horse doctors to do. We have made a small beginning, as Major Butler has pointed out, a very small beginning, but nobody ever yet heard of beginning with the thick end of the wedge. I am sure the small beginning is in the right direction, and I am very glad to find the agitation for going on further not coming from outside but coming from within the profession, the Army Veterinary Department, itself. These, to my mind, are three important lessons to be drawn from this afternoon's discussion. I do not think I am indiscreet in saying that I know the matter is being considered, and that a scheme is being worked out by the proper authorities at the War Office at this moment, a scheme of which I cannot give away the details, because I

am not acquainted with them, but I certainly am optimistic in the matter, and hope that the ultimate result will be all that everyone in this room could wish for. I do not wish to detain you at any greater length, but I feel that we should be only doing our duty in according a most hearty vote of thanks to Colonel Nunn for the lecture he has given us, which has also been the cause of such an interesting discussion.

Colonel H. THOMSON, C.B. (Director-General Army Veterinary Department):—The pleasant duty falls to me of proposing a vote of thanks to Lord Donoughmore for having so kindly taken the Chair this afternoon, and in proposing that vote of thanks I may perhaps be permitted to say a few words on the points mentioned by Colonel Nunn in his lecture and by the other gentlemen in the discussion. It so happens that when the Tirah expedition took place in India I was principal veterinary officer in that country. I was also principal veterinary officer there when the South African war broke out, although I was at home on leave, but the arrangements of the Veterinary Department for the Tirah expedition fell upon my shoulders, as did also the Indian arrangements for the South African campaign, although I did not personally send the hospitals to South Africa. I may tell you that the completeness of those hospitals was due, not to me but to my predecessor, Colonel Duck, who, with his experience of the Chitral campaign, was able to formulate on the previous system something which was much better, which, when he left India to take up the position I now hold, he handed over to me to further complete. I may tell you that we were so near completion that the trouble was very little indeed, but it was sufficient to show what was wanted, and how easy it is to work from peace to what we may require in war, granted that proper facilities are given for that object. I am not giving away any secrets when I tell you that when I came home to take up my present position my chief idea was to attain, if possible, some kind of system which we could work at home similar to that which is at work in India, and I may say that for some time that matter has been under consideration. A little more than a year ago we had a War Office Committee which considered the veterinary service generally, and what was to be done, and as a commencement of the system which I advocate, and which I hope to see through, we were to institute an Army Veterinary Corps. Now, naturally that Army Veterinary Corps in its inception, as our Chairman said, must be only the thin end of the wedge, but we have two hospitals. Major Butler, of course, is not so much *au fait* with what is going on as I am, and I can tell you that at the present time, notwithstanding the fact that the *personnel* of one veterinary hospital is, simply by an accident, scattered all over the place, we could now, within a week, send two field hospitals complete to any place we may want to. That is the beginning we have made. The whole of the equipment is ready, the *personnel* is ready, and it is simply a matter of putting the things on board ship. I do not think I am giving anything away by saying that. We hope later on to further improve the system and extend it as far as we can from time to time, and before very long I trust we shall be able to equip sufficient of the Army Veterinary Corps to accompany any moderate force we wish to send abroad. I think we shall mitigate a great many of the difficulties previously experienced in campaigns. To do that it is necessary to make the organisation at home during peace, but the peace organisation will be chiefly a preparation for war more than anything else. With regard to the organisation which is necessary at home, I concur very generally with what the

lecturer has aid, also with regard to the waste of veterinary service by attaching officers to little units here, there, and everywhere, but there are very great difficulties in introducing that system in the United Kingdom. Our mounted troops are scattered about in small detachments and small units here, there, and everywhere, so that the placing of a large central hospital is a very great difficulty, for the simple reason that only in a very few places have we any facilities for doing so; consequently until something is done to imitate our system in India and elsewhere, and our forces are drawn together in certain localities more than they are at the present time, we shall still have that difficulty to contend with. I do not think there is anything else I need say on this point; I have just touched on a few which I thought would interest you, and I now have very great pleasure in proposing a vote of thanks to Lord Donoughmore for his kindness in coming here and presiding to-day.

THE PROPOSED RE-ORGANISATION OF THE INFANTRY, MILITIA, AND VOLUNTEERS.

*By Colonel H. BLUNDELL, C.B. (late Grenadier Guards), M.P.
for the Ince Division of Lancashire.*

THE Secretary of State for War has made some far-reaching proposals as to the organisation of the infantry of the Regular Army, as to the Militia, and as to the Volunteers.

It is important that these proposals should be carefully considered before his scheme is brought forward in a definite form.

Before discussing these proposals it seems desirable to refer to the Report of the Royal Commission which inquired into the "Military Preparations and other Matters Connected with the War in South Africa," and also to the Report of the War Office Reconstruction Committee.

The Report of Lord Elgin's Commission shows that the system existing at the War Office as between the Secretary of State and the Commander-in-Chief was an unsatisfactory one; it shows also that the necessity of having to apply to the Treasury in order to obtain the stores, equipment, etc., *necessary* for an expedition was very embarrassing when an expedition was likely to be sent out; it shows also that military preparations were delayed for political reasons; these reasons may have been very valid ones, and probably were so, but the Report does not show that the Cabinet was aware of the military difficulties which this delay for political causes would entail upon the force employed in the war, especially as regiments could not be raised to their war strength until after the proclamation declaring a state of national danger and calling out the Reserves had been issued; let us see what actually did happen.

On the 29th September, 1899, the Government authorised the despatch of the force to South Africa:—

48,000 men.
11,000 horses.
14,000 mules.
2,650 wagons.
114 guns.

Six battalions had previously been sent from home and the Mediterranean.

October 7th.—25,000 Reservists were called up and required to report themselves by the 18th October.

October 20th.—Embarkation began.

The whole force, except one regiment delayed by sickness of horses, was completely embarked by 17th November.

October 9th.—The ultimatum of the Boers was sent in. Three days later the Boers invaded Natal.

It thus appears that the Boers invaded Natal *six days before our Reservists had to report themselves in England*, and yet the Reservists seem to have been in the proportion of 42 to 56 of the men with the colours who were to form the Army in the field, and some of them must have left the Army for several years.

The British Army thus entered upon the South African campaign at a great disadvantage. The Boers had the advantage of the initiative, and but for the Indian contingent they must have overrun Natal completely.

The Army was hurried out in fragments, and in most of the early engagements of the war the British force was not complete in mounted troops and transport so as to be able to manœuvre freely in a country which probably more than any other required mounted troops and rapid transport.

There is, I submit, nothing in the Report of Lord Elgin's Commission which condemns the Army proper in the sweeping manner in which public opinion has condemned it.

Its strength exceeded expectations. The Reservists came up admirably; over 98 per cent. of Reservists rejoined the colours. The mobilisation worked well; the supply of the Army in the field in food and ammunition was very well carried out.

These matters must be kept in mind, and in any changes which are made care should be taken to retain all that was found useful in our Army while changing what was not useful.

I will now allude to the War Office Reconstruction Committee.

Many statements are made in the Report of the War Office Reconstruction Committee as admitted facts, but which are open to grave question.

For instance, the Report states that the War Office has "for many years been administered from the point of view of peace."

This is an extraordinary statement when you regard the large number of men sent out to South Africa, the smoothness and rapidity with which the mobilisation and embarkation were carried out, and when you consider the admirable way in which this large force was supplied in the field, especially if you contrast the force sent out to South Africa with the small numbers of British troops which fought under Lord Raglan at the Alma—26,000, increased to about 56,000 by the end of the war—and under the Duke of Wellington—probably 35,000—in the Peninsula. The following troops of the Regular Army were employed in South Africa during the war: 256,340.

Also:—

Of Militia, Yeomanry, and Volunteers from the United Kingdom - - -	109,048
From oversea colonies, including a few Volunteers from India - - -	30,633
Raised in South Africa - -	50,000 or 60,000

Now the Army was organised to send out about 80,000 men!

Part I., Section I., of the Reconstruction Committee treats of the Defence Committee and the formation of a department.

This department has been approved, and the proposal is decidedly a satisfactory one now that it is understood that the Navy

and Army Intelligence Branches are to retain the custody of their confidential documents.

The proposal that the president of the Committee shall *invariably* be the Prime Minister is, however, questionable. For instance, when the Defence Committee was first formed Lord Salisbury was Foreign Minister as well as Prime Minister, whereas the Duke of Devonshire had presided for a long time upon the "Hartington Commission."

Section II., Part I., of this Committee treats of the formation of the Army Council on the lines of the Admiralty Board.

Though one regrets in some ways the old order of things, experience has shown that under the conditions under which Government is carried on in this country some new system must be tried.

Section III., Part I., treats of the appointment of the "Inspector-General of the Forces."

It is of importance that the position of the Inspector-General should be kept up. He should be regarded as the leading soldier and the representative of the Army. Foreign officers attending manœuvres, etc., should be referred to his office.

This was done in Vienna in 1868 when the Archduke Albrecht occupied the post of Inspector-General of the Austrian Army. General Sir C. Ellice was sent from England to the Austrian manœuvres in that year. He and his staff were presented to the Archduke, who seemed to occupy the position on parade and at the manœuvres held by the General Commanding-in-Chief in England.

Section II., Part II., treats of the distribution of the departments in the Army Council. The military departments seem to be distributed on right lines—mind, men, mechanism, matter. While, however, it is right to regard the Chief of the General Staff as the First Military Member of the Council as holding the most important post, it seems desirable that the military rank formerly held by the Adjutant-General during the tenure of his office should be continued to the present Adjutant-General; military rank is desirable for him as the head of the disciplinary branch, while it is of no consequence to the Chief of the General Staff.

The recommendations of the Committee have been accepted by the Government up to this point, but no information is available as to how far they accept the further views of the Reconstruction Committee which are given in great detail.

Section II., Part II., of Lord Esher's Committee treats of decentralisation.

The decentralisation of stores, wagons, and equipment was commenced many years ago, and is probably complete; such a decentralisation was absolutely necessary, but the localisation of records is quite unimportant. Economy should determine all such matters and will probably be against any such localisation.

It seems very questionable whether it is wise to separate administration from the duties of the general officers commanding-in-chief, though it is certain that generals in command of districts have had too much office work. There is no reason why a general commanding-in-chief in an area should be absorbed in administrative work if he is not required to be so absorbed by the Army Council. On the other hand, the proposal that he shall have a free hand to buy land and build barracks as he pleases (if I understand the recommendation aright) appears to be an extravagant and impossible one, for the Army

Council has to obtain the money from Parliament, and therefore cannot divest itself of the responsibility attaching to the erection of new barracks.

In the words of Lord Elgin's Commission, 282, page 143, decentralisation is "a policy which can only be adopted within certain limits." There seems to be a danger of its being pushed too far.

I will not allude further to the recommendations of Lord Esher's Committee, except to urge that initiative and readiness to take responsibility can only be expected from officers who thoroughly understand the principles of their work, and is not likely to be so much affected as the Committee seems to expect by financial changes.

I will now allude to the proposals of the Secretary of State.

I find it impossible to agree with many of the statements and proposals advanced, but if a reduction is required, I think that the reduction of the battalions of infantry selected for reduction is a wise proposal at the present time. It was not always so.

In October, 1815, the Duke of Wellington advised the then Secretary of State for War to keep up the infantry.

(Wellington despatches, Gurwood, 1,000, page 901). He writes:—

"Paris, 23rd October, 1815.

" To Earl Bathurst,—

" My opinion is, that the best troops we have, probably the best troops in the world, are the British infantry, particularly the old infantry that has served in Spain. This is what we ought to keep up, and what I wish above all others to retain.

" The cavalry, that which is the expensive branch of the cavalry—the horses—may be put down in peace, and upon the renewal of war it is more easy to recruit them, or even horses for the artillery, than it is to get together a good body of infantry. For this reason I would recommend to you not to lose your good infantry if you can keep it, and to reform rather the horses of your cavalry and artillery to the utmost and all the expensive parts of your establishments."

But we must recollect that the part which the mounted soldier has to play in modern war is far greater than it was in 1815, and that artillery is more complicated and more effective than it was at that time.

Still, we must not in any way forget the British infantry or do anything to diminish its *quality*. The introduction of a short home service of two years followed by a Reserve service seems also a wise proposal, but not in the manner proposed. This nation is obliged to maintain a large force in India—77,402 men—and a smaller one in the colonies and other places. In order to supply these troops and to relieve them an adequate force must be kept up at home. By this system a battalion is supposed to have a fair proportion of home and foreign service. Most officers will, I think, agree that if the proportion of foreign service preponderates too much the quality of the battalion will deteriorate.

If the battalion deteriorates in quality, its deterioration will affect the Militia and Volunteer regiments to which it sends non-commissioned officers.

If, under the present proposal, three-quarters of the time of the general service battalion will be spent abroad, I think that it will be held that this proportion of foreign service is too great, and that the quality of the battalion will deteriorate.

The home service battalions, as proposed by the Secretary of State, after a few years will be battalions without a nucleus and lacking every element of strength. (See particulars regarding Army Organisation Scheme, page 8.)

The experience of the battalions first formed under Lord Cardwell's system leads one to think that these home battalions, if they are formed, will be found too small for instruction.

It seems certain that if general service battalions took their turn for home service the proportion of home to foreign service battalions would be increased, and the home service battalions would be serviceable battalions, and the quality of the British infantry as a whole would be very much better than by the plan proposed. We must not forget that infantry is an arm in which this country has always excelled.

The organisation of an expeditionary or striking force is distinctly a right one, but considering the larger forces used in even small wars the number proposed is insufficient.

Ten thousand men were sent out to Canada in 1860 when war threatened, and it was thought necessary to strengthen the garrison there. At that time soldiers were enlisted on the ten years' system, and there was no Reserve, but there must have been a not inconsiderable number of men under 20 sent to Canada. In the Indian Mutiny, that campaign which shed such lustre on the British Army, there must equally have been a not inconsiderable number of men under 20.

I do not doubt that the rule forbidding youths under 20 being sent to India in peace time is a right one, but I cannot believe that on a sudden emergency youths under 20 should be sent away from the battalion going "on service"; it may be to a climate as healthy as that of the United Kingdom.

I would urge then that when a battalion has to go on service, any youth who has passed his drill, whom his commanding officer wishes to take, and the medical officer deems fit to go, should go with his battalion.

If we allow ourselves to be fettered by the present arrangement, depend upon it, we shall lose more life than we save.

Why are these restrictions imposed in the case of war?

Lord Raglan, I think, wrote from the Crimea: "Do not send me more boys, they die like flies," or words to that effect, but these boys were enlisted and drilled for six weeks, then sent out in that severe winter before Sebastopol when there was difficulty in getting up provisions from Balaclava, and everything was against them.

Is this restriction to apply to all expeditions? If it is, to whom do we owe this crippling regulation on that subject?

The Secretary of State speaks of the want of employment for men on discharge. The long period required—nine years—for general service prevents a man returning to his occupation or labour before he has lost his aptitude for it. Therefore, some fair certainty of employment on leaving the colours is most desirable. This cannot, I fear, be obtained for the privates in the manner proposed. Possibly men might work at a trade as part of their duty while serving. They might, on leaving the Army, be enlisted into some Indian corps, formed

on the lines of the East India Company's force and intended to enable them to eke out a pension by service in India, towards which they voluntarily underwent the required stoppage of pay in aid of the pension; or else in the Garrison Artillery, which ought not to compete with the infantry for the youth of the country.

In Mr. Cardwell's time there had been wars between Prussia and Austria, 1866; and between Germany and France, 1870.

Western Europe was exhausted and sought for no territory outside Europe. All we had to look to was India, and it was thought that railways had diminished the dangers there.

Fear of Russia's advance was called by one Secretary of State "Mervousness," another spoke of large scaled maps, and outside Europe we had no competitors.

There was a great opening for economy; Mr. Cardwell seized it. He amalgamated two single battalion regiments, and made the one at home the dépôt of the other; the battalion abroad was good, that at home was on so small an establishment that it was not possible for much instruction to be carried on. There were the recruits, the mess, and the band—little else. Gradually, however, the establishment of the home battalions has been raised till they became serviceable.

Four company dépôts such as there were in the Crimean war would have met the case of both battalions of an amalgamated regiment being abroad at the same time.

On the subject of regimental dépôts the view generally held 20 or 30 years ago was, that as soon as a soldier was drilled he should be sent to a battalion rather than remain at a dépôt. This, I think, must still be so.

The best system at that time was the system of the Brigade of Guards. Recruits were sent to the Recruit Establishment, where there were no private soldiers except those selected for purposes of instruction. When the recruits had finished their drill, they were sent to a battalion. The advantage of this system was, that there was no possibility of an old soldier carelessly or wilfully leading a recruit into trouble, and causing his course of drill to be broken in upon very seriously. This often happened with a battalion, and at a regimental dépôt. But I fear that it is not possible to apply this system universally.

The small regimental dépôts of the infantry regiments of the Army were supposed to bring the Army in touch with the Auxiliary Forces, and in this they seem to have succeeded. Fault is found with the barracks; now barracks should be light and healthy, but there is a danger in a luxurious age of our going too far in the way of amenities. Money would be far better spent on anything which affects the lot of the soldier *after* his service is over.

I now come to the proposals with regard to the Auxiliary Forces, the Militia and Volunteers.

We must not forget that they are Auxiliary Forces; they are a great potential strength to this country, and suited, I venture to think, to its requirements. Our insular position gives us, alone in Europe, time; a Continental nation if unprepared, may be overrun in a very short time by its neighbour; but as at the commencement of a war our Fleet is sure to be at hand, we have still time to prepare, and then is the time to embody the Militia and to bring our Volunteers into a state to take the field.

As stated on page 9 of the Summary of the Secretary of State's speech :—

"The Army we want is an Army which will enable us to maintain our Empire across the sea in peace and in war, and which will enable us to resist raids at home in the absence of the Fleet."

Our danger is that in the throes of a long war our Fleet may be away, possibly decoyed away as it has been before.

The word "raid," however, must be objected to; it is an indefinite term.

See p. 24 of the Report of Lord Elgin's Commission in a letter dated 21st December, 1898, to Sir William Butler from Headquarters. He was told: "Although an attempt may be made on Kimberley, and the northern strip of Natal may be occupied by the Boers, yet it is considered unlikely that any further advance into the heart of either colony would be undertaken. Raids, however, of 2,000 or 3,000 men may be expected, and it is against such raids that careful preparation on your part is necessary."

We know what happened. The Boers when they came, came in force. Raids on this country, in the absence of the Fleet, composed of a considerable body of infantry, Maxims, pom-poms, and cyclists, with a small proportion of long-range guns, might do great mischief, as is clearly pointed out by the following letters from Field-Marshal the Duke of Wellington. ("Life of Wellington." By the Right Hon. Sir Herbert Maxwell, Bart., M.P. Volume II., page 359.)

Maxwell's "Life," speaking of the letter to Sir Robert Peel, says :—

"He therefore addressed to Sir Robert a letter which he had at first intended to send to Lord Stanley as War Minister, containing a complete scheme of defence by the land forces, including the organisation of the Militia, and requests that naval officers should be desired to explain what the movements and disposition of the Fleet should be if war broke out. On the precise recommendations made it is unnecessary to dwell at this time; to show the earnestness of the warning, a few passages may be cited."

Letter from the Duke of Wellington :—

"I sincerely wish that I could prevail upon you to consider calmly this great and important subject, compared with which all other interests of the country are mere trifles. All admit the great change made in the system of maritime warfare. Lord Palmerston and you call it a bridge across the Channel between France and this country. I say it is rather a multitude of bridges, from a base in France extending from Bordeaux to Dunkirk. . . . Her Majesty's dominions are in a situation for defence worse than that of the frontier in any State of Europe contiguous to France . . . every port open to attack, for the defence of which we have not one disposable soldier, and we must depend for our safety upon the operation of our fleets. . . . I put the hypothetical case of the enemy landing 25,000 men near one of our great naval arsenals, attacking, succeeding in taking, and destroying the arsenal. This hypothesis is not the representation of an impossibility, or even ex-

travagant, considering what I have seen done myself, having at the time superior armies in the field opposed to me. In this case you would not have a man. . . . If a body of troops were landed in the neighbourhood of one of our places of a sufficient force to invest the place, say 25,000, then I defy all the fleets of England to save it without the assistance of an Army in the field. I entreat you to weigh all this well. . . . I tell you fairly that I consider the danger so certain and so imminent that I conceive, that if there existed an absence of party and prejudice in our Imperial councils, that which ought to be recommended is an alteration in the military policy of the country. . . . It is my duty to tell you all this. I entreat you to investigate the subject maturely—admit nothing as true only because I state it—and then decide whether you will incur the risks of leaving matters as they are. I beg you to believe that, decide what you may, it is my wish and intention to aid and assist the Government in anything upon which you may decide after due examination."

In a long reply, Peel admitted the truth of the Duke's representations, but the financial difficulty was more immediately present in his mind than in that of the Commander-in-Chief:—

"The country is encumbered with a debt of 787 millions. The annual interest of that debt raised by taxation amounts to 28 millions. There has been peace in Europe for the long period of thirty years, and but little progress has been made in the reduction of that debt."

On the fall of the Peel Administration in 1846, the Duke addressed to Lord John Russell, as head of the new Government, a strong memorandum on the necessity for strengthening the defensive forces. Finally, in 1847, came his famous letter to Sir John Burgoyne, which is too long to insert at length, and, besides, immediately found its way into print, much to its writer's disgust. Nevertheless, of such vital and present importance is the subject to the people of these islands that some of its paragraphs deserve to be quoted once more:—

"You are aware that I have for years been sensible of the alteration produced in maritime warfare and operations by the application of steam to the propelling of ships at sea. This discovery immediately exposed all parts of the coast of those islands which a vessel could approach at all, to be approached at all times of tide, and in all seasons, by vessels so propelled, from all quarters. We are, in fact, assailable, and at least liable to insult, and to have contributions levied upon us, on all parts of our coast—that is, the coast of these [islands], including the Channel Islands, which to this time, from the period of the Norman conquest, have never been successfully invaded. I have in vain endeavoured to awaken the attention of different Administrations to this state of things, as well known to our neighbours (rivals in power, at least, former adversaries and enemies) as it is to ourselves. . . . We hear a great deal of the spirit of

the people of England, for which no man entertains higher respect than I do. But unorganised, undisciplined, without systematic subordination established and well understood, this spirit, opposed to the fire of musketry and canon and to sabres and bayonets of disciplined troops, would only expose those animated by such spirit to confusion and destruction."

Here follows an elaborate plan for reorganising, strengthening, and disposing of the existing defensive forces, after which the Duke proceeds:—

"The measure upon which I have earnestly entreated different Administrations to decide, which is constitutional, and has been invariably adopted in time of peace for the last eighty years, is to raise, embody, organise, and discipline the Militia, of the same numbers for each of the three kingdoms, united as during the late war. This would give a mass of organised force amounting to about 150,000 men, which we might immediately set to work to discipline. This alone would enable us to establish the strength of our Army. This, with an augmentation of the force of the Regular Army, which would not cost £400,000, would put the country on its legs in respect to personal force; and I would engage for its defence, old as I am. But as we stand now, and if it be true that the exertions of the Fleet alone are not sufficient to provide for our defence, we are not safe for a week after the declaration of war.

"I am accustomed to the consideration of these questions, and have examined and reconnoitred, over and over again, the whole coast, from the North Foreland, by Dover, Folkestone, Beachy Head, Brighton, Arundel to Selsey Bill, near Portsmouth, and I say that, excepting immediately under the fire of Dover Castle, there is not a spot on the coast on which infantry might not be thrown on shore, at any time of tide, with any wind, and in any weather, and from which such a body of infantry, so thrown on shore, would not find, within the distance of five miles, a road into the interior of the country, through the cliffs, practicable for the march of a body of troops; that in that space of coast (that is, between North Foreland and Selsey Bill) there are not less than seven small harbours, or mouths of rivers, each without defence, of which an enemy, having landed his infantry on the coast, might take possession, and therein land his cavalry and artillery of all calibre and establish himself and his communications with France.

"The French Army must be much altered indeed since the time at which I was better acquainted with it, if there are not now belonging to it forty *Chefs d'Etat Majors-Generals* capable of sitting down and ordering the march to the coast of 40,000 men, their embarkation, with their horses and artillery, at the several French ports on the coast, their disembarkation at named points on the

English coasts—that of the artillery and cavalry in named ports or mouths of rivers, and the assembly at named points of the several columns—and the march of each of these from stage to stage to London. Let any man examine our maps and road books, consider the matter, and judge for himself.

"I know no mode of resistance, much less of protection from this danger, excepting by an Army in the field capable of meeting and contending with its formidable enemy, aided by all the means of fortification which experience in war can suggest.

"I shall be deemed foolhardy in engaging for the defence of the Empire with an Army composed of such a force of Militia. I may be so. I confess it, I should infinitely prefer, and should feel more confidence in, an Army of Regular troops. But *I know* that I shall not have these; I may have others; and if an addition is made to the existing Regular Army allotted for home defence of a force which will cost £400,000 a year, there would be a sufficient disciplined force in the field to enable him who should command to defend the country. . . .

"You will see from what I have written that I have contemplated the danger to which you referred. I have done so for years. I have drawn to it the attention of different Administrations at different times. You will see, likewise, that I have considered of the measures of prospective security, and of the mode and cost of the attainment. I have done more. I have looked at and considered these localities in quiet detail, and have made up my mind upon the details of their defence. These are the questions to which my mind has not been unaccustomed. I have considered and provided for the defence—the successful defence—of the frontiers of many countries. . . .

"I quite concur in all your views of the danger of our position and of the magnitude of the stake at issue. I am especially sensible of the certainty of failure if we do not, at an early moment, attend to the measures necessary for our defence, and of the disgrace, the indelible disgrace of such a failure—putting out of view all the other unfortunate consequences, such as the loss of the political and social position of this country among the nations of Europe, of all its allies, in concert with, and in aid of whom, it has, in our own times, contended successfully in arms for its own honour and safety, and the independence and freedom of the world. When did any man hear of the allies of a country unable to defend itself? Views of economy of some, and I admit that the high views of national finance of others, induce them to postpone those measures absolutely necessary for mere defence and safety under existing circumstances, forgetting altogether the common practice of successful Armies in modern times, imposing upon the conquered

enormous pecuniary contributions, as well as other valuable and ornamental property. . . .

"I am bordering upon seventy-seven years of age, passed in honour. I hope that the Almighty may protect me from being the witness of the tragedy which I cannot persuade my contemporaries to take measures to avert.

"Believe me, ever yours sincerely,

"WELLINGTON."

To return to the proposals of the Secretary of State for War:—

There is, however, in the preceding paragraph to the one I have quoted from the Secretary of State's summary, a statement which, I think, must be traversed entirely. He says:—"If we have not command of the sea it will not be necessary for an enemy to land, it can starve us into submission."

Is this so? Can corn be kept out of this country unless America and the countries on the west of Europe were all allied against us and successful at sea? But such an alliance against us may be said to be politically impossible.

I do not underrate the effect of a naval war or of even a single naval reverse upon the cost of bread, and think that in case of a naval war Government should have power to regulate the cost of bread to prevent its undue enhancement by panic and speculation; but this does not alter my contention that you cannot starve this country, except by such an alliance as I have mentioned.

If a large body of troops may, under certain circumstances, make such an attack as the Duke of Wellington indicated, a Regular force ought never to be dispensed with, but that does not affect the great value of the Militia and Volunteers.

The Militia is the old constitutional force of this country, in which every man is liable to serve; the Militia has on many occasions been of great value to the country, and has largely helped to feed the Army with recruits. It has suffered too much by the process, and let us hope that the measures proposed for its amelioration will restore it to its proper position.

The Militia can, I submit, never be done away with in this country as long as we have a Volunteer Army, for many a man makes experience of the Militia before he determines to join the Army. We cannot have general service for the Army until such service is felt to be necessary.

Dry the Channel to-morrow, and it would at once be felt to be necessary; but till that happens there seems no probability of general service in the Army being adopted in time of peace. In a very exhausting war, which we may hope will not happen, this country must study the example of the United States. The Northern States, after incurring enormous expenses in pay, bounty, etc., at the end of the war could not escape compulsion; knowing this, it is to be hoped that, if this country is placed in such a strait, compulsory service will be resorted to before an immense debt is incurred in a vain attempt to avoid compulsion.

One change should undoubtedly be made in the conditions of service of the Militia.

The Militia should be liable in time of war or great emergency to serve throughout the Empire, except perhaps India. If this change was made, the inconvenience of having to ask the Militia to volunteer to serve in the Mediterranean, which experience shows is an obvious duty in time of war, would be avoided.

If our self-governing colonies followed this example, they might, if their Governments decided to do so, send a regiment of Militia to relieve a garrison on an emergency during war. Some years ago many officers thought that the Yeomanry should be done away with, Lord Wolseley was for its retention. The war in South Africa showed clearly that its abolition would have been a great misfortune.

The Secretary of State mentioned some changes in his proposals as to the Volunteers, so that I imagine nothing is absolutely settled as to the Volunteer force.

I think that too much was asked of the Volunteers as to attendance in camp.

Nine days—*i.e.*, a whole week and the end of that preceding—are enough, and employers would probably see their interest in furthering such a time. Such a time would probably secure the best men, who might be otherwise deterred from joining the Volunteers.

The inspecting officer should inform the commanding officer what he wishes practised, and instruction should be confined almost exclusively to it.

There are regiments, some of them in London, composed largely of clerks in offices, which cannot even give a continuous week, and yet they are very good regiments. Possibly an equivalent to camp service might be given, they might march, for instance, to Hounslow or to some other ground three times in the summer, pitch their camp, and cook, staying there, for instance, Saturday and Sunday nights, and returning on Monday.

A proper standard of physique in the Auxiliary Forces should be enforced, and the strength of these forces must be kept within the necessary financial limits, but neither force can be dispensed with, they are of the greatest value to the country.

The money to be given to rifle clubs is a wise provision.

A BRIEF HISTORICAL SKETCH OF THE IRISH INFANTRY REGIMENT OF DILLON AND THE IRISH STUART REGIMENTS IN THE SERVICE OF FRANCE, 1690-1791.

Communicated.

DURING the 16th, 17th, and 18th centuries a by no means inconsiderable number of Irish and Scotch soldiers, generally raised and led by members of noble houses of their respective countries, were to be found serving in different Armies on the Continent, where, owing to the great reputation they had achieved, the result of their splendid discipline and the desperate valour they had displayed on many a hard-fought field, a very high value was set upon their services. Of all these Scotch and Irish troops, who under a foreign flag maintained the martial renown of the land of their birth, none could show a more distinguished or honourable record than the celebrated Irish Brigade, which for a hundred years or more fought so gallantly under the French standard.

The Brigade was called into being under the following circumstances:—The arrival of King James II. in France, in December, 1688, after his flight from England, was followed almost immediately afterwards by the declaration of war between the two countries. In the spring of 1689, James, accompanied by several French officers, and abundantly supplied by Louis XIV. with funds, arms, ammunition, and munitions of war, proceeded to Ireland, where he landed on the 17th March at Kinsale. An army of 30,000 men, consisting of sixteen regiments of horse and forty-six of foot, raised by Tyrconnel, Richard Hamilton, and other Irish leaders, was awaiting his arrival; but as it was ill-trained and still deficient in arms and equipment, a year later, Louis sent him a French division, consisting of the regiments of Zurbaulen, Mérode, Famechon, Forest, La Marche, Courvassiez, and Tournaise, under the command of Lieut-General the Count de Lauzun, numbering 6,300 men in all, which landed at Kinsale 27th March, 1690; but as Louis had need at that time of all the troops he could muster for carrying on the war against the Emperor and other signatories of the League of Augsburg, it was agreed that in exchange for these battalions James should despatch some of his Irish troops to France. Accordingly a brigade, composed of the five regiments of "Mount-Cashel," "O'Brien," "Dillon," "Fielding," and "Butler," named after the colonels who commanded them, and by whose families they had been raised, was embarked on the 18th April on board the French squadron, which had conveyed the French troops to Ireland, and landed at Brest on the 1st May, where according to contemporary writers, their soldier-like bearing (*tous*

gens bien faits) and serviceable uniform made a most favourable impression.

Each of the three first-named regiments consisted of sixteen companies (of which one was the Colonel's Company), divided into two battalions. Each company was 80 men strong, except the Colonel's, the effective strength of which was much higher. The regiments of Fielding and Butler, whose colonels remained in Ireland, consisted of only two weak battalions, and shortly after their arrival in France they were incorporated with the other three.

The three regiments of "Mount-Cashel," "O'Brien," and "Dillon" were grouped into one brigade, under the command of the senior of the three colonels, whose name it took, and was consequently at first known as the "Brigade of Mount-Cashel." The five thousand three hundred and sixty-one officers and men which the brigade numbered on the 1st June, 1690, were the origin and nucleus from which sprang that celebrated Irish Brigade, whose glorious services were intimately bound up for a hundred years with the military history of the French Monarchy. In the following year the Brigade received a notable accession of strength by the landing in France on the 3rd December, 1691, of the bulk of James's shattered army—some 18,000 officers and men—who, after the conclusion of the disastrous campaign of 1690-91, elected to follow their fallen King into exile. The most strenuous efforts and lavish promises were made to induce them to take service under England, and great was the mortification of William's generals when only some 1,000 men out of the whole force were won over to his colours.

After its arrival, the force was reorganised; the remnants of nine regiments of horse were formed into two, and the foot, including two regiments of dismounted dragoons, into ten; besides these there was the bodyguard and three Free Companies. The force thus re-formed was as follows:—

THE BODYGUARD.

Horse.

The King's Regiment	-	-	-	Colonel D. Sheldon.
„ Queen's „	-	-	-	Colonel Lord Galmoy.

Dragoons.

The King's Regiment	-	-	-	Colonel D. Sarsfield.
„ Queen's „	-	-	-	Colonel Lord Kilmallock.

Foot.

The Royal Regiment of Foot Guards	-	-	-	Colonel the Duke of Ormond.
„ Queen's Regiment of Foot Guards	-	-	-	Colonel Simon Luttrell.
„ Marines	-	-	-	Colonel the Duke of Albemarle.
„ Regiment of Dublin	"	-	-	Colonel Sir Michael Creagh.
„ „ Limerick	-	-	-	Colonel Richard Talbot.
„ „ Charlemont	-	-	-	Colonel Gordon O'Neill.
„ „ Athlone	-	-	-	Colonel Roger MacEligott.
Three Free Companies	-	-	-	Captain Rutherford. Captain Browne. Captain Hay.

In their new organisation they were reviewed by James at Vannes, early in 1692, and subsequently, at Brest, by Louis XIV. They numbered 19,050, and with the regiments of Mount-Cashel, Clare, and

Dillon, which had been increased to three battalions each, and were already in the field in Spain, there were nearly thirty thousand of James' Irish troops in the service of France.

Paid by France, they were described on the Continent as "The Army of King James," and gave him marked political prestige. On their colours they bore the harp surmounted by the Stuart Imperial Crown on a red cross, on which ran the motto: *In hoc signo vinces*. (See Frontispiece.) Two of the quarterings were red, two of the colour of the facings of the regiment, with the Stuart Crown on each. Their uniform, both horse and foot, was red up to 1791, when the brigade, already much reduced, practically ceased to exist.

From 1690 to 1698, James' Army was in the field in Savoy, Piedmont, Spain, France, and in the Low Countries; but early in the latter year, following the Peace of Ryswick, the French Army was very largely reduced, and the Stuart Irish Regiments from twenty-six strong battalions to eight regiments of seven hundred men each, while the two regiments of horse were formed into one:—

<i>Name.</i>	<i>Horse.</i>	<i>Originally.</i>
Sheldon.		Sheldon. Galmoy.
	<i>Foot.</i> *	
Dillon.		Dillon.
Lee.		Mount-Cashel.
O'Brien (who became Lord Clare when his Regiment resumed its former name)		Clare.
Dorrington.		Ormond (the Guards).
Albemarle.		Albemarle (the Marines).
Berwick.		Lord Duggan.
Bourke.		Athlone.
Galmoy.		Galmoy.

For many years the ranks of the brigade were constantly replenished from the large numbers of the flower of the Irish race, who, either as Jacobite refugees or as simple Irish Catholics who fled from Ireland during the period of the penal laws, found a refuge on French soil. The Records in the French War Office show that, from the arrival of the Irish troops in France in 1690 to the year 1745, more than four hundred and fifty thousand Irishmen died in the service of France. After the signing of the Peace of Aix-la-Chapelle, in 1748, the tide of emigration, however, from Ireland much slackened, as the result of the severe law passed by the Irish Parliament against those who enlisted under the French flag, coupled with the abolition of the penal laws against the Catholics and the greatly increased industrial prosperity in the island; so that at the time of the Revolution the Irish element among the soldiers had been considerably reduced. The officers, however, were all still Irish or of Irish origin, and, to a large extent, representatives of distinguished Catholic families. The Irish were on a higher rate of pay than the French. They were fully officered, having many officers attached who were on half-pay. Moreover, the non-commissioned officers were largely composed of gentlemen.

Between 1699 and 1791 there were many changes in the brigade. In 1702, Bourke's Regiment, with the consent of Louis XIV., was

transferred to the service of Spain. In 1715 the Albemarle Regiment was incorporated with the regiments of Lee and Clare, and Lord Galmoy's with Dillon's. In 1744 a fresh regiment was formed for Lally, who was afterwards the celebrated Governor of Pondicherry and the French Carnatic, but who was at that time a major of Dillon's. In 1775 the Clare Regiment was incorporated with Berwick's, and Bulkley's (originally Mount-Cashel's) with Dillon's. At the same time, the Walsh Regiment (originally Ormond's) was incorporated with the Legion of Dauphiné, but in 1777 it was restored to its former position. In 1791 the brigade had dwindled to three regiments of two battalions each: Dillon's, Berwick's, and Ormond's, known as Walsh de Sarrant's, and were distributed:—

Dillon's.

1st Battalion	Lille.
2nd Battalion	St. Domingo.

Berwick's.

1st Battalion	Besançon.
2nd Battalion	St. Domingo.

Walsh de Sarrant's.

1st Battalion	France.
2nd Battalion	St. Domingo.

The French records give ample testimony to the brilliant conduct of the Irish regiments before the enemy. In 1690 the Marquis de Dangeau, after relating how General Saint Ruth had beaten 1,200 Piedmontese strongly entrenched, says: — “Les Irlandais qui étaient à cette action-là ont fait des merveilles à ce qui Saint Ruth mande, et Milord Mount-Cashell, qui les commandait, a été dangereusement blessé.”

In 1702, for their services at Cremona, Louis XIV. rewarded the Dillon Regiment by a large gratuity, and raised the pay of Bourke's Regiment.

In 1703, at the battle of Hochstaedt (Blenheim), the Irish Brigade drove the Hanoverians back with heavy slaughter, broke completely through the line of the Allies, and nearly achieved a success as brilliant as that which the same brigade afterwards gained at Fontenoy. For their gallant conduct Louis rewarded them by an increase of officers, raising also to full pay several of those who were attached on half-pay.

After Cassano (1705) the Duke de Vendôme wrote to Louis XIV. that “the Irish had fought with exemplary intrepidity and courage, and that they were troops whose zeal and attachment could always be depended on on occasions of the most difficult nature in war.”

At the battle of Ramillies (1706) Clare's Regiment lost its colonel, Lord Clare, killed, with 38 officers and 326 men out of the 800 with which the regiment entered the battle; but it captured the colours of a Dutch and those of Churchill's (the Duke of Marlborough's brother) Regiment, which were opposed to it.

At Almanza (1707), under the Duke of Berwick, and again at Malplaquet (1709) the Irish Regiments covered themselves with glory. “At the latter battle,” writes de Quincey, “the Irish Brigade overthrew everything that came in their way”; while at Fontenoy (1745), as is well known, it was the desperate valour of the Irish Brigade

which snatched the victory out of the hands of the Allied troops, at the very moment when it seemed assured to them.

The history of Dillon's Regiment, which follows, has been more closely traced, and may be accepted as representing the services of the Stuart Irish Regiments in the service of France between 1690 and 1791, in France, Savoy, Piedmont, Spain, Italy the Tyrol, Flanders, Germany, the West Indies, and America. Lally's, Clare's, and Ormond's Regiments served in Southern India under Lally; Ormond's and Bulkley's made two campaigns in Corsica.

The first Regiment of Dillon was raised in Ireland, 20th June, 1653, by the Hon. Sir James Dillon, a general in the French and Spanish Armies. After serving against Cromwell it embarked for France, and joined the army under Turenne, operating in Flanders against the Prince de Condé, where it particularly distinguished itself in forcing the lines of Arras (August, 1656, at the siege of Dunkirk, and the battle of the Dunes (14th June, 1658). The regiment was disbanded in February, 1664.

In 1688, however, the regiment was re-formed in two battalions of eight hundred men each by Theobald, seventh Viscount Dillon, lieut.-colonel of James II.'s Irish Guards, who was afterwards killed, 12th July, 1691, at Aughrim. Two years later it proceeded to France, as already related, under the command of the Hon. Arthur Dillon, Lord Dillon's second son, who was then only eighteen years of age, and who rose to be a lieut.-general when only thirty-three, and was first on the list for promotion to marshal at the time of his death in 1733.

The Regiment of Dillon enjoyed the almost unique distinction in the French Army of never having its name changed, and during the whole period of its existence it was always commanded by some member of the family by whom it was originally raised. Its first colonel gave over the command in 1728 to his eldest son Charles, who, on succeeding as tenth Viscount, returned to Ireland in 1734, his brother Henry taking over the command, which he held until 1743, when he, having become eleventh Viscount two years previously, returned to Ireland, urged thereto by Louis XV. in order to preserve his estates in Ireland and England.

The third brother, the Chevalier James Dillon, received the regiment, and fell at its head at Fontenoy in 1745. The fourth brother, Edward Dillon, was at once nominated to the command by Louis XV., and two years later fell at the battle of Laufeld.

The fifth brother being Archbishop of Narbonne and Primate of the Gauls, the King named the Hon. Arthur Dillon, second son of Henry, eleventh Viscount, a boy, to be colonel, and permitted him to take command when twenty-three years old, in 1767. He had a most distinguished career, and saw much service in command of the regiment; was created a Count, and became a General at forty. After being Governor of St. Christopher and Tobago in the West Indies, he became, in 1792, Commander-in-Chief of the Army of the Ardennes, and of the Army of the Rhine in 1793. In the beginning of 1794 he was summoned to Paris, and as a Royalist and an Aristocrat was guillotined on the 13th April of that year. His name figures on the Arc de Triomphe in Paris, and his portrait is preserved at Versailles. He was succeeded in the command by his son, Count Theobald Dillon, who was killed at Lille in 1792. In 1793, what was left of the Regiment of Dillon, as such, ceased its connection with the French

Army, and became the 87th French Infantry of the Line, but as during the Revolution the greater part of the 1st Battalion, with all the officers, left France with the Royal Princes, and eventually went over to the British Army in 1794, and as the 2nd Battalion, after capitulating at St. Domingo in 1793, also did the same, it would appear as if the 87th Regiment inherited but little of the Dillon Regiment beyond its glorious traditions.

Coming back to the early history of the regiment, its 2nd Battalion was ordinarily known as the Battalion of Lally, as it was in a great measure raised in 1689 by a cousin of its young colonel, James Lally, who was put in command of it with the rank of colonel, while his three younger brothers, Gérard, William, and Mark Lally each possessed and commanded a company.

On the arrival of the three regiments in France, Lord Mount-Cashel made an agreement with Louis XIV., which secured to the brigade certain solid advantages. All the officers enjoyed high pay, while the privates received a sol per diem more than their French comrades; finally, the old custom, known in England under the name of *poundage*, was maintained in favour of the colonels. This consisted of a levy of a sol per pound (sterling) on all the payments made to their regiments, whether for the pay and allowances of the officers or for the pay, maintenance, and subsistence of the men. Lord Mount-Cashel, moreover, enjoyed the same rights over the Dillon and O'Brien Regiments, independently of the sol per pound received in addition personally by the colonels of those two corps.

From Brest, towards the end of July, 1690, the regiment proceeded to join the Army in Savoy under the orders of Lieut.-General de Saint Ruth, and it distinguished itself highly on the 12th September in a brilliant *coup de main* against the troops of General Sales, between Moustiers and Conflans, in the Tarentaise, after which it was ordered to join the force employed in blockading Montmélian, where Colonel James Lally, commanding the 2nd Battalion, was killed. In the spring of 1691, the headquarters of the regiment, with the 1st Battalion, were sent to join the Army in Catalonia, under the orders of the Duke de Noailles, the 2nd Battalion remaining before Montmélian. A detachment commanded by its colonel took part in the storming and capture of Urgell (11th June), and the battalion then marched to the relief of Prats-de-Mollo, and after this duty it went into winter quarters at Villefranche and Prades.

In April, 1692, the 2nd Battalion rejoined the 1st in Spain; but during the whole year the Duke de Noailles had to remain on the defensive in the valleys of Ampourdan, to the south of the Pyrenees, as his army had been much weakened by his having had to send strong reinforcements to the army in Italy.

At the end of May, 1693, the French Army first reassembled at Boulon, and then proceeded to lay siege to Roses, the operations being much hindered by bad weather. On the night of the 5th-6th June the Grenadiers of the Dillon and Erlach Regiments, who were in the trenches, supported by six other companies, seized, at the point of the sword, the demi-lune on the right front of the attack. Roses surrendered on the 9th June, and the army then encamped at St. Pierre Pescador, where fever and other diseases made such inroads on the effective strength that no further operations could then be undertaken. The regiment went again into winter quarters at Prats-de-Mollo.

In 1694 the army, after having crossed the Pyrenees at Bellegarde, debouched, on the 18th May, on the plains of Ampourdan. On the 26th the advance guard crossed the Fluvia and came into contact with the enemy strongly entrenched behind the small river Ter. A lively artillery fire ensued, under cover of which, towards the end of the day, the French formed their line of battle. The next morning at daybreak the main body of the army crossed the river in line, the water being almost up to their chins, and attacked the front of the Spanish positions, whilst the Grenadiers, the cavalry, and the guns, during the night, crossed at the Encol ford lower down the stream. The Spaniards, finding their position turned, fell back in disorder and were hotly pursued for nearly twelve miles. The victory of Ter cost the regiment two officers killed, two wounded, and some sixty men placed *hors de combat*. Palamos was next laid siege to. On the night of the 6th-7th June, M. Gérard Lally, the captain of the Grenadiers, and his subaltern, M. Fitz-Gerald, received orders to proceed with their company and the Grenadiers of the Regiment de Noailles and reconnoitre the covered way. They attacked the Spaniards so suddenly and so furiously that the latter abandoned the covered way almost without striking a blow; they were at once pursued without being given time to recover themselves, and the regiment, which was in the trenches, coming up to reinforce, the bastion was carried by escalade and their colours planted. The regiment lost in this brilliant *coup de main*, three officers killed, eighteen wounded, and some eighty men placed *hors de combat*. Three days later the rest of the garrison, who had taken refuge in the citadel, surrendered. The same day the army struck its camp and moved against Girone. The Dillon Regiment again took part in the attack directed against the very important work known as the White Fort. As at Palamos, M. Gérard Lally was again ordered to attempt the covered way. The enemy was again surprised, thrown into disorder, and, supported by the regiment, the Grenadiers stormed the bastion. M. Lally and M. Guaydon, the ensign of the colonel's company, were among the wounded. Girone capitulated on the 30th June without waiting for the assault. After taking possession of Hostalrich (19th July) and Castelfollit (8th September) the army went into winter quarters round Prats-de-Mollo.

In the spring of 1695 the Spanish Army, considerably reinforced during the winter, blockaded the weak French garrisons left in Hostalrich and Castelfollit. M. de Saint-Sylvestre, who had succeeded Marshal the Duke de Noailles, invalided, in command of the Army, succeeded in revictualling Hostalrich (3rd May). On the return, a force composed of all the Grenadiers of the Army and two hundred men from each battalion attempted to relieve Castelfollit, but, attacked by much superior forces of the enemy and deserted by its cavalry, it was almost completely cut to pieces. Of the detachment of the Dillon Regiment only the colonel, the adjutant, and forty soldiers escaped, the colonel's brother, among others grievously wounded, being left for dead on the field.

After this unfortunate affair, M. de Saint-Sylvestre was extremely anxious to at least throw a convoy into Castelfollit, which was on the point of starving. He only partly succeeded, as the enemy, being in strong force, the small French column had to retreat with its task only half completed. Lally and his Grenadiers, posted at San Juan to cover the convoy, were there surrounded by the Spaniards; but

they succeeded in cutting their way through with heavy loss and rejoining the column (29th May). In the month of September the army went into winter quarters round Labisbal.

During 1696 no engagement of any importance seems to have occurred between the two opposing armies. The numerical weakness of the French army had necessitated the continual putting off of the siege of Barcelona; but on the 12th June, 1697, the town was at last invested. The 2nd Battalion of Dillon was left in garrison at Girone, and the 1st Battalion alone, with the staff of the regiment, took part in this memorable siege, where it carried off fresh laurels.

Close to Barcelona, above the village of Séria, the Spaniards occupied a fortified camp on the mountain. Souches's Brigade, of which Dillon's formed part, camped below Séria, its duty being to cover the besieging force and oppose any attempt on the part of the Spaniards to raise it.

On the 15th June, Count Arthur Dillon received the order to attack with three hundred Grenadiers and two hundred Fusiliers the Capuchin Monastery, which was occupied by five hundred of the enemy's Grenadiers. Although suffering badly from fever at the time, the young colonel conducted the attack with so much vigour that in less than an hour the position was captured. Some thirty officers and men placed *hors de combat* were the losses sustained by the regiment. The same evening trenches were opened from the captured position. In spite of the bad weather and the daily sorties of the besieged, the besiegers' works were actively pushed forward, and on the 24th June a battery was established, which proved so effective against the defences that the Spaniards directed all their efforts against it. The Dillon Regiment occupied the trenches right and left of the battery, and foiled all the attempts of the Spaniards to storm it and spike the guns with such gallantry that the regiment was publicly congratulated by Marshal the Duke de Vendôme. But the superior weight of the enemy's guns of position finally began to tell, and many of the French guns were dismounted by the fire from the fortress. At last M. de Lapara, the Engineer-in-Chief of the besieging army, informed the Marshal that at all costs the covered way, distant some three hundred yards from the trenches, must be seized. So orders were given to Colonel Dillon with five hundred Grenadiers, supported by the pickets and men working in the trenches, to capture the right salient, whilst Brigadier-General de Chartognes, with an equal number of Grenadiers, and four hundred men, commanded by Lieut.-Colonel Mannery, attacked the left. On the 4th July, between 9 and 10 p.m., the two columns debouched simultaneously from the trenches to the attack. Dillon succeeded without much difficulty in effecting a lodgment on the right of the covered way, although with some loss; but the column on the left was met with so heavy a fire that they were thrown into confusion, and began to fall back. At this critical moment the brigadier exclaimed: *A moi, Dillon!* At this call, the rest of the regiment, which was in the trenches, sallied out with their colours, rallied the wavering Grenadiers, and, rushing the covered way, swept it clear of its defenders in spite of the heroic resistance of the Spaniards, one regiment falling to a man where they stood. At day-break the enemy made a desperate attack on the French, who were worn out by the fighting and their prolonged efforts during the night; but although thrown momentarily into disorder, Dillon's soldiers,

energetically rallied by Major Lally, repulsed the Spaniards after some hard hand-to-hand fighting.

On the 14th July the Grenadiers and four hundred men of the regiment took part in surprising the camp of the Viceroy, Don Diego de Valasco, which was fixed on San Félice. The surprise was complete; the camp was captured and pillaged, Don Diego making his escape in his shirt on a bare-back horse. On the 22nd July, as night fell, a mine was exploded against the bastions of Saint Claire and Notre Dame. The attack on the first of these works was confided to Colonel Dillon with four hundred Grenadiers and four hundred men forming the pickets, who advanced before all the chambers of the mines had been fired, with the result that the Grenadiers, who formed the head of the column, lost a certain number of men destroyed by the explosion and buried in the *débris*, but they seized the bastion, and in spite of a deadly fire poured upon them from an adjoining tower, they succeeded in holding what they had won.

The regiment, however, was so weakened by the heavy losses it had sustained that it became necessary to send it to the camp at Séria, where Chartognes' Brigade was lying, to rest and have their wounded properly tended. On the evening of the 4th August the camp was attacked by a large force of Spanish infantry, supported by cavalry. Although somewhat taken by surprise, the regiments Souches, Soire, and Dillon fell in rapidly without disorder, then, charging the Spaniards after some close fighting, drove them back up the mountains from which they had descended. On the 10th August, Barcelona, without waiting the final assault, surrendered, fifty-two days after the trenches had been opened against it.

The 1st Battalion of Dillon Regiment, which had commenced the campaign that year over eight hundred strong, lost forty-eight officers and five hundred and twenty men killed and wounded.¹ They were left to garrison Barcelona, to the capture of which important town for France their valour had so largely contributed. The conquest of this city was a decisive blow struck at the Spanish Monarchy. An armistice was concluded almost immediately afterwards, which was followed by the signature of the Peace of Ryswick (20th September, 1697), which brought to a conclusion the war against the League of Augsburg.

(*To be continued.*)

¹ To account for the large number of officers put *hors de combat* during the siege of Barcelona and all the campaigns up to the middle of the 18th century, it must be remembered that all the Irish Regiments had a very large number of officers, who were called *à la suite* of the regiment. They served without holding any regular command, and only received half-pay, being brought on the strength in rotation as vacancies occurred, their places again being filled by other volunteers.

DEVIATIONS OF THE COMPASS : A GRAPHIC METHOD.

By G. T. BENNETT, Emmanuel College, Cambridge.

THE linear equations of Poisson express the force on the compass needle of an iron ship, in terms of the local magnetic force of the earth, in a form which is purely analytical. If, however, the geometrical point of view be taken, the two forces appear as vectors, connected by the special kind of relation known as projective. Some of the simple and well-known methods of projective geometry thus

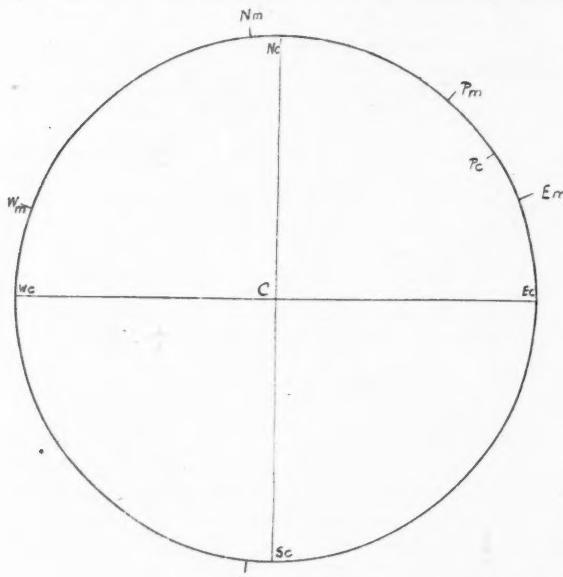


FIG. 1.

associate themselves very readily with the treatment of compass-deviation; and the intention of the following paper is to state and explain briefly, without mathematical demonstration of their truth, some of the geometrical theorems which are thus available, and which seem likely to be of practical use.

§§ 1. DESCRIPTION OF FIGURE AND NOTATION.

The figure consists fundamentally of a circle, centre C , representing an ordinary compass diagram. The circumference should, for convenience, be graduated in compass points and degrees; but these are omitted in the accompanying figures. Any course, whether true magnetic or by disturbed compass, is to be represented by a point marked on the circumference of the circle at the proper angular distance from the top or north point of the diagram. For magnetic and compass courses which correspond to each other, the same letter will be used to name the two points which represent them, a subscript m or c being attached to the letter according as it marks a magnetic course or a compass course. Thus (Fig. 1) the points P_m , P_c represent a magnetic course N. 40° E. and the compass course N. 56° E. corresponding to it; so that $P_c P_m$, the deviation, reckoned positive when with the sun, is here equal to -16° . The north point of the diagram, if representing a compass course due north, will be called N_e , and the corresponding magnetic course will be represented by a point N_m ; and similarly for other points of the compass. As an additional distinction, in the diagram, between magnetic and compass courses the letters representing magnetic courses are placed outside the circle, and the letters representing compass courses are placed inside the circle.

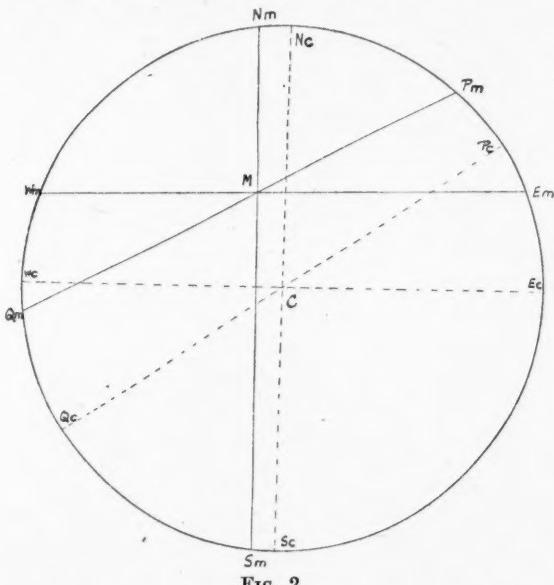


FIG. 2.

§§ 2. MAGNETIC CHORDS AND THEIR CONCURRENCY.

If points representing exactly opposite compass courses are taken, as N_e and S_e , or E_e and W_e , or P_e and Q_e (Fig. 2), these pairs of points are situated at the ends of diameters $N_e S_e$, $E_e W_e$, $P_e Q_e$, all passing through the centre C ; but the lines $N_m S_m$, $E_m W_m$, $P_m Q_m$, joining the points

which give the corresponding magnetic courses, will usually be chords and not diameters of the circle. They will be called for brevity *magnetic chords*. It can be shown that all magnetic chords meet in a point, which will be called M . In Fig. 3 are shown the 8 magnetic chords corresponding to 8 pairs of opposite compass courses for the case of H.M.S. "Trident," taken from the Admiralty Manual (1901), p. 57. The deviations are as follows:—

Ship's Head by Compass.	Deviation of Compass.	Ship's Head by Compass.	Deviation of Compass.
N	-3° 10'	S	+3° 10'
NNE	+8° 10'	SSW	-3° 0'
NE	+16° 50'	SW	-9° 40'
ENE	+20° 30'	WSW	-16° 10'
E	+20° 20'	W	-21° 10'
ESE	+18° 5'	WNW	-24° 0'
SE	+14° 40'	NW	-22° 0'
SSE	+9° 40'	NNW	-14° 50'

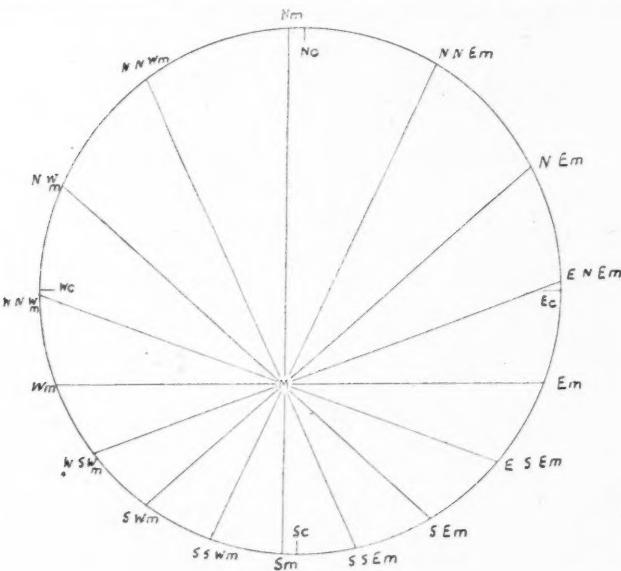


FIG. 3.

§§ 3. DIAGONALS AND THEIR CONCURRENCY.

If points P_c , Q_c are taken (Fig. 4) representing any two compass courses, and if P_m , Q_m represent the corresponding magnetic courses, then if MP_m meets CQ_c (produced if necessary) in G , and if MQ_m meets CP_c (produced if necessary) in L , GL may be called (in contradistinction to the fixed diagonal CM) the *working diagonal* of the quadrilateral figure

formed by the four lines. It can be shown that all such working diagonals pass through one and the same point, which will be called D .

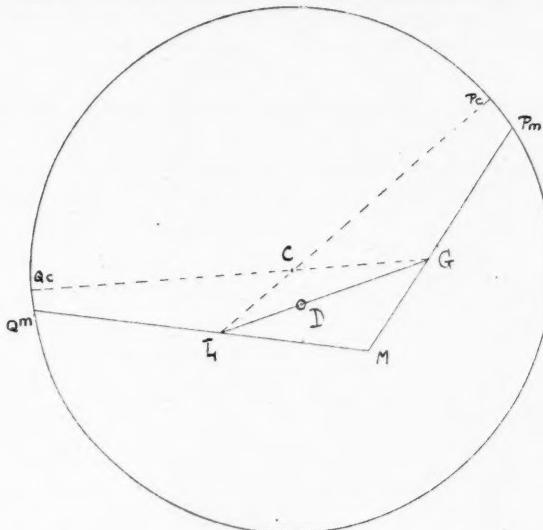


FIG. 4.

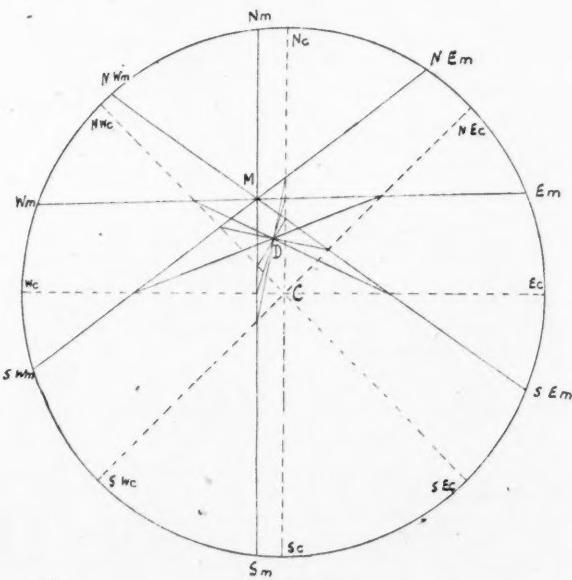


FIG. 5.

In Fig. 5 are shown all the concurrent working diagonals, six in number, which are obtainable by taking compass courses on the cardinal and inter-cardinal points with the magnetic courses corresponding to them. The deviations in the figure are taken from the case of H.M.S. "Warrior," Admiralty Manual, p. 163.

§§ 4. NUMBER OF OBSERVED DEVIATIONS NECESSARY TO DETERMINE M AND D .

To find the point M it suffices to observe deviations on any two pairs of opposite compass courses X_e and Y_e , U_e and V_e (Fig. 6); for the

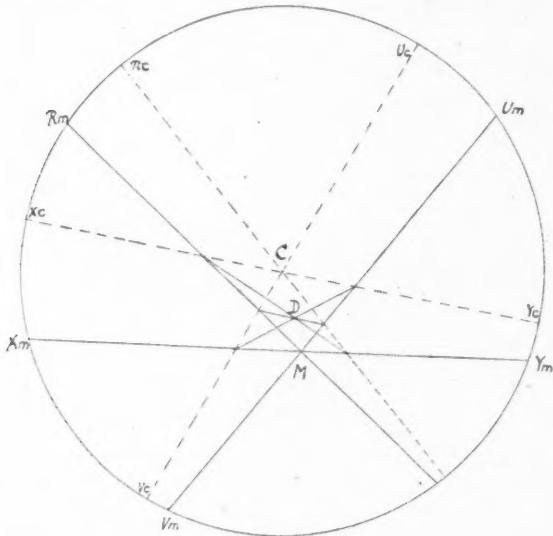


FIG. 6.

magnetic chords X_m , Y_m , U_m , V_m thus found give the point M as their intersection. To find D the deviation must be known on any one other compass course R_e ; for then the magnetic chord MR_m corresponds to CR_e as does MX_m to CX_e and MU_m to CU_e , and hence (§§ 3) D is determined as the point of intersection of any two of the three working diagonals that can be drawn.

§§ 5. GRAPHIC CONSTRUCTION FOR DEVIATION ON ANY COURSE, MAGNETIC OR BY COMPASS.

The foregoing geometrical results lead to the following graphic method of finding the deviation on any course:—

With the observed deviations on five compass courses as data (two pairs out of the five being on opposite compass points) let M and D be found as in §§ 4; and let P_e , P_m be any one of the five pairs of points used in the construction.

Then—

- i. To find the compass course Q_e corresponding to any given magnetic course Q_m :—Let MQ_m meet CP_e (produced if necessary) in L , and let LD meet MP_m in G : then CG meets the circle in the required point Q_e (Fig. 4).
 - ii. To find the magnetic course Q_m corresponding to any given compass course Q_e :—Let CQ_e (produced if necessary) meet MP_m in G , and let GD meet CP_e (produced if necessary) in L ; then ML meets the circle in the required point Q_m .

It will be clear that in making repeated use of the above constructions the particular pair of points P_m, P_e first used may, if convenient, be

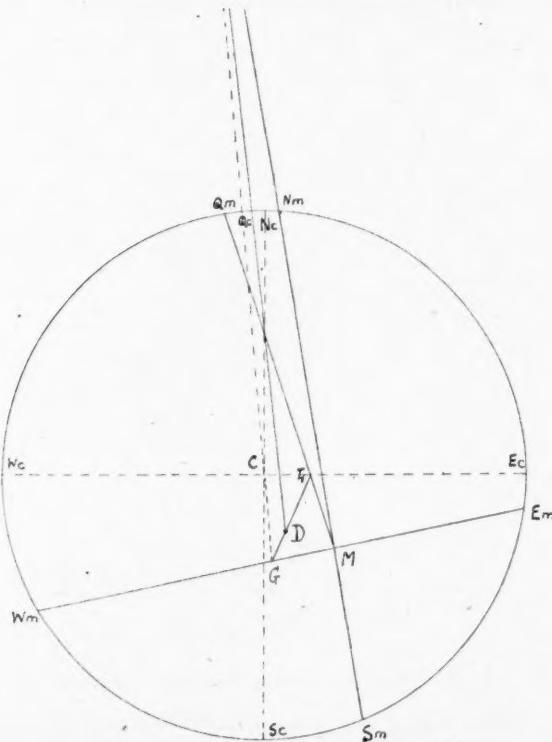


FIG. 7.

replaced by any new pair of points to which the constructions lead. The use of the points \bar{N}_m , N_c (S_m , S_c being the same thing) or E_m , E_c (W_m , W_c being the same thing) suggests itself for the sake of symmetry; and the alternative use of both these ways recommends itself, as a matter of practical expediency, by giving an obvious means of keeping the points G and L within the limits of the figure. Fig. 7 shows the convenience of this choice.

§§ 6. CHANGES PRODUCED IN THE DIAGRAM BY CHANGE OF MAGNETIC LATITUDE, ETC.

If the magnetic chords corresponding to any given set of compass courses be once drawn, alterations of time and place will need only a new diagram in which the new chords are drawn through a new position of M in directions parallel to their original directions. The new position of M can be found from new observations of deviation on any *two* compass courses. For if (Fig. 8) the magnetic course corresponding to compass course P_c changes from P_m to P'_m , and the magnetic course corresponding to compass course Q_c changes from Q_m to Q'_m , then lines drawn through $P'_m Q'_m$ parallel to $P_m M$, $Q_m M$ intersect in M' the new position of M . The new position of D , if wanted, is easily found by §§ 3.

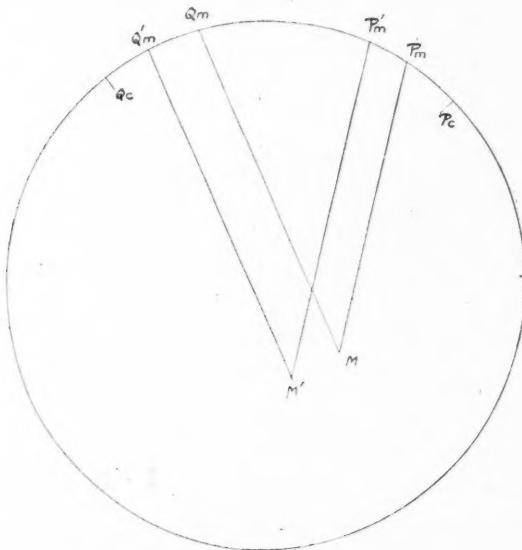


FIG. 8.

§§ 7. COMPARISON WITH NAPIER'S DIAGRAM.

The Graphic Method here described has certain points of resemblance to Napier's Deviation Diagram. The circumference of a circle replaces the axis of the Napier Diagram as a line on which points are taken to represent both compass courses and magnetic courses: the magnetic chords and the radii of the circle play the part of the plain and dotted lines, and the point D , serving as the means of connection, takes somewhat the part of the hand-drawn curve of the Napier Diagram. Beyond this however the Napier Diagram method offers no analogy with the present one; for the circle method needs only ruler and compasses in the working, is exact instead of approximate in its results, needs as data the deviations on only

five courses¹, is easily modified for a change in magnetic latitude, and provides the values of the exact coefficients² if needed for purposes of mechanical correction.

Certain Dygram methods, involving the consideration of force as well as deviation, resemble the present deviation method in giving exact results; but none (so far as the writer knows) are available without involving the observation of both force and deviation, or needing calculation of the exact coefficients by the use of formulæ prior to the construction of the figure.

§§ 8. AN ILLUSTRATION.

To exemplify the use of the diagram the following problem is taken. Deviations (from Admiralty Manual, p. 163) on compass courses N., N.E., E., S., and W. are given to be $-6^{\circ}30'$, -13° , $-22^{\circ}15'$, $+5^{\circ}30'$, $+19^{\circ}15'$; and it is required to find the compass course corresponding to a magnetic course S. 30° W. The whole of the work necessary to find the result S. 14° W. (to the nearest degree) is shown in Fig. 9.

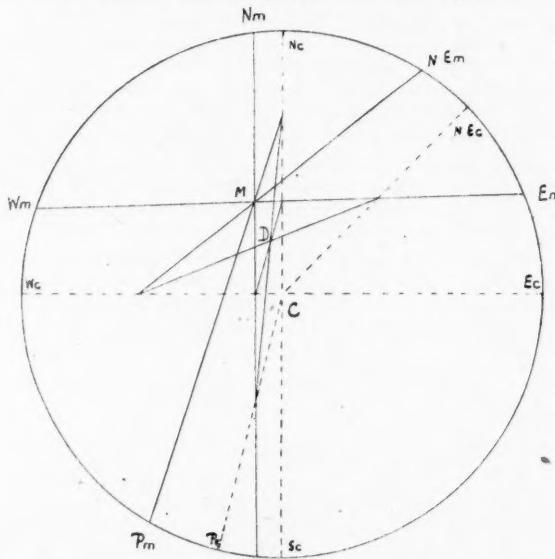


FIG. 9.

§§ 9. A VARIATION OF THE METHOD.

It will be noticed that as a matter of practical geometrical drawing, the construction is most convenient when the semicircular deviation is

¹The curve of the Napier Diagram is often spoken of as determined, theoretically, by a minimum of four points; but this is in conflict with the dependence of the form of the curve upon the values of the five exact coefficients. It is perhaps assumed that the smallest of these is zero.

² Appendix §§ 10.

large; and that when the semicircular deviation is small the points M and D may approach so close to the point C that the part of the construction depending on the use of the working diagonal GDL becomes cramped and uncertain. A simple expedient whereby to evade this difficulty without increasing the size of the figure is to take a *false position* for M : to draw chords, that is, through some arbitrary point M' at any convenient distance from C , parallel to the actual magnetic chords through M : then the rest of the work may be quite conveniently done as if for the point M' , and any chords obtained from M' may be finally transferred back, by parallels, to M . [It is in any case recommended that the figures drawn in practice should have at least double the size of those which accompany the text as illustrations.]

APPENDIX.

§§ 10. THE EXACT COEFFICIENTS OF THE DEVIATION FORMULA.

The geometrical method here described takes no account explicitly of the *exact coefficients*, \mathfrak{A} , \mathfrak{B} , \mathfrak{C} , \mathfrak{D} , \mathfrak{E} which appear in the trigonometric formula (Admiralty Manual, p. 101, formula 11) expressing the deviation in terms of the angle of the magnetic course; for the construction derives the deviations on all courses directly from the observed deviations on five. But it is natural that the values of the coefficients should be intimately associated with the figure, and they may easily be obtained from it.

Taking the radius of the circle as unity, the distances of the point D from lines E_eW_e and N_eS_e are respectively equal to $\mathfrak{B}/2$ and $\mathfrak{C}/2$; the values being taken positive when D is situated in the south-east quadrant, with suitable reversals of sign in the other three quadrants.

The values of \mathfrak{A} , \mathfrak{D} , and \mathfrak{E} seem to be given most simply by the ratio GD/DL (Fig. 4) for special positions of the diagonal GDL . Putting $GD/DL = (1-n)/(1+n)$, and taking P_eQ_e in all possible ways at cardinal and inter-cardinal points, values of n are obtained as shown in the following table:—

P_e	Q_e	n
E_e	N_e	\mathfrak{D}
NE_e	NW_e	\mathfrak{E}
NE_e	N_e	$\mathfrak{A} + \mathfrak{D} + \mathfrak{E}$
E_e	NW_e	$-\mathfrak{A} + \mathfrak{D} + \mathfrak{E}$
N_e	NW_e	$\mathfrak{A} - \mathfrak{D} + \mathfrak{E}$
E_e	NE_e	$\mathfrak{A} + \mathfrak{D} - \mathfrak{E}$

The substitution of the opposite compass point for any one here given as S_e for N_e , etc., gives only the same working diagonal and so the same value of n over again.

Any three of the six cases (all shown in Fig. 5) usually suffice to give the values of \mathfrak{A} , \mathfrak{D} , and \mathfrak{E} .

[Among the 20 possible sets of three there occur four sets which, exceptionally, determine only \mathfrak{D} or \mathfrak{E} and the sum or difference of the other two coefficients.]

For purposes of accurate measurement it is convenient to select those cases which give the longest diagonals.

§§ 11. CHANGES PRODUCED IN THE DIAGRAM BY CHANGE
OF MAGNETIC LATITUDE, ETC.

The coefficients \mathfrak{B} , \mathfrak{C} have values, at any time and place, depending partly on the local intensity and dip of the earth's magnetic force, and partly also on the ship's permanent and retained magnetism. Alterations in these elements caused by lapse of time or change of position or both will thus alter the values of \mathfrak{B} and \mathfrak{C} and will consequently cause displacement of the point D (and also of the point M) to a new position in the diagram.

The coefficients \mathfrak{A} , \mathfrak{D} , \mathfrak{E} , on the other hand, have values depending only on the coefficients of magnetic induction of the soft iron of the ship. Their constancy involves (as may be shown) constancy of direction of all magnetic chords. It is this fact that is made use of in the construction of §§ 6.

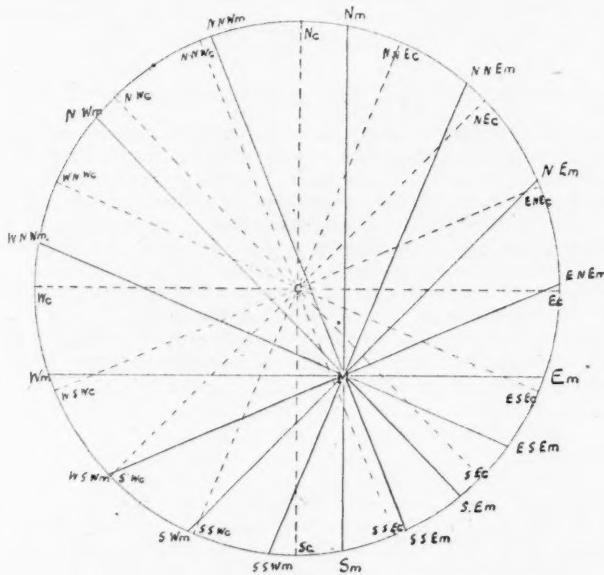


FIG. 10.

§§ 12. CASE WHEN THE DEVIATION IS ENTIRELY SEMICIRCULAR.

If mechanical correction has given zero values to \mathfrak{A} , \mathfrak{D} , \mathfrak{E} , the magnetic chords through M will be found to lie parallel to the corresponding diameters through C . The point D then falls midway between C and M , and its use both in the construction and in giving the values of \mathfrak{B} and \mathfrak{C} may be dispensed with; for the rule of parallelism serves for the construction, and the distances of M from E_e , W_e and N_e , S_e give (in this special case) \mathfrak{B} and \mathfrak{C} . Observed deviations on any two courses serve, as in §§ 6, to determine M and thus to find the deviation on any other course. Fig. 10 illustrates this special case.

§§ 13. CASE OF ANY FIVE KNOWN DEVIATIONS.

It may be worth mentioning that if the deviations are observed on five compass courses taken at random, so that no two of the five are opposite, then the determination of M may still be made geometrically, with the use of the ruler only, though not so immediately as in §§ 2. [The problem is that of finding a point of projection such that five given points projected from it shall give a pencil projective with a given pencil.] The point D can then be immediately found (§§ 3), and the rest is as before.

§§ 14. THE CASE OF A SMALL SEMICIRCULAR DEVIATION.

Remarks similar to those of §§ 9 apply to the method (§§ 10) of deriving the values of **A**, **D**, and **G** from the ratio GD/DL . If the semicircular deviation should be altogether absent, this variation of the method becomes not merely convenient but necessary. It may be regarded as a hypothetical change of magnetic latitude, justified in its use by §§ 11.

§§ 15. REMARK ON THE NOTATION.

In the foregoing paragraphs there has been no occasion to speak of true magnetic courses coinciding exactly with the cardinal points; and therefore no notation has been suggested for them. The north point of the diagram has been marked N_c as representing a compass course due north; and N_m (not the north point) has represented the corresponding magnetic course; and similarly for other points of the compass. It goes without saying, however, that the north point may be used as marking a *magnetic course* due north; in which case the corresponding *compass course* will be marked at some point not the north point of the diagram. The introduction of a distinct notation for these points is superfluous for the present paper; but an explicit recognition of their existence may guard against a possible confusion.

NAVAL NOTES.

HOME.—The following are the principal appointments which have been made : Vice-Admirals—The Right Hon. Lord C. W. D. Beresford, K.C.B., K.C.V.O., to Command of Mediterranean Fleet, with acting rank as Admiral; Sir L. A. Beaumont, K.C.B., K.C.M.G., to be Commander-in-Chief at Plymouth. Rear-Admirals—Sir W. H. May, K.C.V.O., to Command of Atlantic Fleet, with acting rank as Vice-Admiral; H.S.H. Prince Louis of Battenberg, G.C.B., G.C.V.O., to Command of 2nd Cruiser Squadron; A. C. B. Bromley to be Admiral Superintendent of Malta Dockyard; W. H. B. Graham to Command of Reserve Division at Chatham-Sheerness; C. G. Robinson to Command of Reserve Division at Devonport; R. L. Groome to Command of Reserve Division at Portsmouth; A. L. Winsloe, C.V.O., C.M.G., to Command of Submarines and Torpedo Flotillas; R. H. F. Henderson, C.B., to be Admiral Commanding Coastguard and Reserves; H. D. Barry to be Admiral Superintendent of Portsmouth Dockyard. Captains—J. R. Jellicoe, C.B., to be Director of Naval Ordnance; A. Ricardo to "Barfleur"; F. C. M. Noel to "Hood"; W. de Salis to "Blake"; C. H. Umfreville to "Niobe"; J. P. Rolleston to "Arrogant"; E. S. Fitzherbert to "Canopus"; R. H. Stokes to "Prince George"; G. C. A. Marescaux to "Europa"; G. H. B. Mundy, M.V.O., to "King Alfred"; F. St. G. Rich to "Powerful"; F. G. Eyre to "Spartiate"; A. T. Stuart to "Terrible"; the Hon. F. C. B. Addington to "Eclipse"; E. F. A. Gaunt, C.M.G., to "Indefatigable"; H. H. Stileman to "Latona"; J. Casement to "Goliath"; H. P. Williams to "Ramillies"; H. L. Tottenham to "Repulse"; A. Hayes-Sadler to "Resolution"; E. R. Le Marchant to "Argonaut"; E. F. Pears to "Diadem"; A. E. A. Grant to "Scylla"; F. G. Kirby to "Bacchante"; C. G. F. Cradock, C.B., M.V.O., to "Leviathan"; A. C. Leveson to "King Edward VII."; C. L. Ottley, M.V.O., to be Director of Naval Intelligence; M. E. Kerr, M.V.O., to "Drake"; H. Campbell to be Superintendent of Sheerness Dockyard; W. B. Fisher, C.B., to Command of R.N. Barracks, Devonport; M. E. Browning to "Impregnable"; C. E. Madden, M.V.O., to "Majestic"; A. H. Christian to "Juno"; R. H. Bacon, D.S.O., to be Naval Assistant to Admiral Sir J. Fisher, G.C.B.; A. Y. Moggridge to "St. George"; R. H. J. Stewart to "Gibraltar"; C. J. Briggs to "Vernon"; Commanders—P. Walter to "Brilliant"; R. Glennie to "Waterwitch"; F. W. Dean to "Hussar"; C. F. Sowerby to "Isis"; E. F. Bruen to "Surprise"; C. C. Fowler to "Defiance"; H. H. D. Tothill to "Diamond"; L. E. Power to "Pegasus"; G. H. Borrett to "Pioneer"; H. St. G. S. Clive to "Pyramus"; C. F. Lambert to "Sapphire."

The Distribution and Mobilisation of the Fleet : Précis of First Lord's Memorandum and the Circular Letter from the Admiralty to Commanders-in-Chief :—

1.—THE EFFECTIVE WAR FLEET.

The whole of the effective war Fleet will henceforth consist either of :—

- a. The Fleet in commission at sea, or
- b. The Fleet in commission in reserve.

It follows from this broad definition, first, that all ships of little or no fighting value will be put out of commission at once and written off the effective strength of the Navy, with the exception of such few ships as may still be required for the adequate performance of the peace duties of Imperial police, though the greater part of these duties, together with that of showing the flag in imposing force on suitable occasion, will henceforth be discharged by some one or other of the powerful Cruiser Squadrons now to be organised; and, secondly, that a similar policy will be adopted in respect of ships of light character now in the Reserve. They will not be repaired nor reckoned for mobilisation, but will gradually be disposed of "as my Lords may hereafter determine."

2.—DISTRIBUTION OF THE FLEET IN COMMISSION AT SEA.

In accordance with the ancient and appropriate nomenclature, the present so-called Home Fleet is henceforth to be known as the Channel Fleet, and to consist of 12 modern battle-ships and a sufficient number of attendant cruisers. Its headquarters will be at home, and its station the home waters.

The present Channel Fleet is henceforth to be known as the Atlantic Fleet. It will consist of eight modern battle-ships and a proper complement of cruisers. Its permanent base will be Gibraltar, and all its repairs will be effected there.

The Mediterranean Fleet will consist of eight modern battle-ships and a proper complement of cruisers. Its base will still be Malta, and all its repairs will be effected there.

In European and Atlantic waters there will be four Cruiser Squadrons. The first and second will each consist of six armoured cruisers and will be affiliated to the Channel and Atlantic Fleets respectively, but will be detachable on occasion for independent exercises and cruises.

The third will consist of the large cruisers on the Mediterranean station, and will bear the same relation to the Mediterranean Fleet that the first and second squadrons are to bear to the Channel and Atlantic Fleets respectively.

The fourth will be a "Particular Service Squadron," with the Atlantic for its cruising ground, and its headquarters, when at home, at Devonport. It will be placed under the command of the Commander-in-Chief of the present North America and West Indies station, and will consist of his flag-ship together with other "valuable modern ships" allocated in peace time to the training of cadets and boys, but capable in time of war of immediate transformation into effective fighting units by the removal of the cadets and boys under training, and the completion of the crews "with the small additions required for war." The more advanced training services will also be carried on in sea-going modern cruisers affiliated to the Gunnery, Torpedo, and Navigation Schools, and capable of immediate adaptation to war purposes in any emergency.

This completes the enumeration of the fighting fleets at sea in European and Atlantic waters. The South Atlantic Squadron will disappear. The North American Squadron will be transformed, and its headquarters will be transferred to this side of the Atlantic; but the whole of the North Atlantic, especially its more western and southern latitudes, will be its regular cruising and training ground.

In extra-European waters the present China, Australia, and East Indies stations will be retained, such battle-ships as are required being allotted, as at present, to the China station, while the cruisers of the three stations, though attached to their respective stations in time of peace, will in time of war be placed at the disposal of the Commander-in-Chief of the China station, who will be responsible for their strategic distribution: "so that they may at the earliest possible moment deal with all the ships of the enemy to be found in those waters." These three Cruiser Squadrons will thus form an Eastern group, just as the three extra Mediterranean Cruiser Squadrons in the Atlantic and home waters will form a Western group. A fighting squadron will be retained on the Cape of Good Hope station, and will form "a connecting link between either the Eastern group and the Mediterranean cruisers or the Eastern group and the Western group." The present Pacific station, already disestablished, will remain in abeyance. Thus the Commander-in-Chief in China will in effect become the admiral of the whole Pacific.

3.—ORGANISATION OF THE FLEET IN COMMISSION IN RESERVE.

All the effective fighting ships which are not at sea will, nevertheless, be in commission in reserve, and available either for reliefs or for reinforcements. Each ship not undergoing a refit of long duration will have its nucleus crew, consisting of the most important ranks and ratings. That is, she will have a captain, a second in command, and a proportion of other officers, including the engineer, gunnery, navigating, and torpedo officers, together with two-fifths of her war complement, including all the more expert ratings, especially torpedo ratings and the principal gun numbers. These will all serve in her when she is ordered to sea, and, with her nucleus crew and permanent staff of officers, she will go to sea periodically for gunnery practice and machinery trials. When mobilisation is ordered, she will be completed with a full crew, consisting of 50 per cent. of active ratings and 50 per cent. of Reserves, but to the latter will be assigned duties and stations which do not demand either the highest skill or the most recent training; they will, in fact, be practically sea-labourers. The ships of this category in each naval port will be formed into squadrons, each under a flag officer who will command them in time of war and be directly responsible for their fighting and sea-going efficiency. Thus, when occasion arises, they will all be ready to go to sea in full organisation and efficiency as soon as the crews have been made up to full complement in the manner above indicated.

In addition, six modern battle-ships and six modern cruisers, two of each in each naval port, all forming part of the fighting Reserve, and, therefore, all having permanent nucleus crews as above described, are to be told off as "emergency ships." Provision is made for filling these ships up at any moment to full complement from the floating surplus of personnel, without dislocating the general arrangements for mobilisation. These 12 ships would thus be the first reinforcement of the fighting fleets at sea, to be sent to sea at a few hours' notice in case of a sudden

emergency. If the emergency became more acute, they would be followed at the shortest possible interval by all the ships in commission in reserve, made up to their full complements by the ordinary process of mobilisation. Behind all these there will be nine other battle-ships in special reserve without nucleus crews, which, if required, could be manned in due course of mobilisation with one-third active service ratings, one-third Royal Fleet Reserve, and one-third Royal Naval Reserve. This is the only element of the fighting fleet of the future which will continue to be mobilised more or less after the present fashion. All the rest will be mobilised henceforth on the basis of continuous commissions and permanent nucleus crews.

4.—RELIEFS, REPAIRS, AND REFITS.

All ships in commission at sea will be commissioned for two years only, and will retain their officers and crews as far as possible unchanged for that period. It follows that half the Fleet in commission will be relieved annually, being either recommissioned with entirely new crews, or relieved by exchange of places with ships in commission in reserve. Ships of the Mediterranean and Atlantic Squadrons will return to England to recommission; those on other foreign stations will be recommissioned at some port about midway between England and their station.

Under the system of two-year commissions it is provided that no ship is to be in dockyard hands for more than 30 working days in all in each year. In ordinary circumstances, ships which go into harbour to refit will be subject to the condition that they are to be ready for sea in cases of emergency at four days' notice. If any longer period is required for refit, the crew may be ordered to turn over to another ship, and will be ordered to do so if the refit will take more than 30 days. In no case will more than two battle-ships from the Channel Fleet or more than one battleship from either the Mediterranean or the Atlantic Fleet be permitted to undergo refit at the same time. The same principles are to be applied to armoured cruisers in commission at sea. Periodical refits of a larger character are to be provided for, the ships affected being put of commission for the time and their place being taken in the fighting line by other ships.

5.—THE SYSTEM TO BE TESTED.

This scheme of reorganisation is to be tested in 1905 and 1906 by a system of progressive manœuvres taking place simultaneously all over the world, in which as close an approximation to the conditions of actual war will be aimed at as is consistent with a state of peace. The Commanders-in-Chief and other flag officers all over the world will have to act throughout on their own initiative, to concert plans beforehand for mutual support, and to be responsible for continuous mutual co-operation.

6.—NEW DESIGNS.

With regard to ships hereafter to be built, the types and classes required, and the features to be embodied in them, a special committee on designs is to be appointed at once "in order temporarily to assist the Board and the Director of Naval Construction in the elucidation of the problems involved." The Board will first lay down "as a basis what they consider to be the fighting requisites of the desired types of war-vessels and the governing features of each type to which the other features shall be subservient."

7.—EFFICIENCY AND ECONOMY.

Finally, the First Lord remarks:—"That the scheme will greatly increase the fighting efficiency of the Fleet there can, I think, be no doubt; it will also, I am happy to say, result in a very considerable economy on the Navy Estimates."—*Times*.

THE FIRST LORD'S MEMORANDUM.

The First Lord's Memorandum, entitled, "Distribution and Mobilisation of the Fleet," which is issued as a Parliamentary paper [Cd. 2,335], and in which we have inserted cross-headings to facilitate reference, is as follows:—

"The Board of Admiralty have decided to make certain changes in the distribution of the Fleet and in the arrangements for its mobilisation, the nature and reason of which I desire to explain.

A NEW STAGE IN NAVAL EVOLUTION.

"A new and definite stage has been reached in that evolution of the modern steam Navy which has been going on for the last thirty years, and that stage is marked, not only by changes in the *matériel* of the British Navy itself, but also by changes in the strategical position all over the world arising out of the development of foreign Navies. In the Western Hemisphere the United States are forming a Navy the power and size of which will be limited only by the amount of money which the American people choose to spend on it. In the Eastern Hemisphere the smaller but modern Navy of Japan has been put to the test of war, and has not been found wanting. The Russian Navy has been greatly increased, and (with the exception of the fleet in the Black Sea) has been wholly transferred, or is in course of being transferred, from the Baltic to the Pacific. The Navies of Italy and Austria-Hungary maintain their positions in the Mediterranean, but they have not been the subject of such increased expenditure as those of other Powers. The French Navy stands, as always, in the fore-front. The new German Navy has come into existence; it is a Navy of the most efficient type, and is so fortunately circumstanced that it is able to concentrate almost the whole of its Fleet at its home ports.

MODERN BATTLE-SHIPS AND ARMOURED CRUISERS.

"In the British Navy all the older battle-ships have been replaced by modern ones, so that it may now be said that all the battle fleets in commission are composed of modern battle-ships. This fact in itself marks a distinct stage in the evolution of the *matériel* of the Navy; but still more significant and far-reaching in its consequences is the fact that this country is now rapidly becoming possessed of a number of modern armoured cruisers. When the "Devonshire" class are completed during the course of next year there will be in commission or in the Reserve 4 "Drakes," 6 "Cressys," 10 "Monmouths," 6 "Devonshires," or in all 26 armoured cruisers. These are not all perfect ships, and many subsequent improvements can be made in the types represented, but they are nevertheless a great advance on anything which has preceded them, and they bring in their wake a revolution in respect of the composition of our cruiser squadrons.

"The features in these ships, which differentiate them from anything that has preceded them, are their great speed, which enables them at will to overtake any vessel of inferior speed or to escape from any vessel of superior power, their armour, which gives security to the men who fight the guns and to the vitals of the ship, and their armament, which in some cases is as powerful as that of the older battle-ships. With such ships even the best so-called "protected" cruisers would engage at a considerable disadvantage, and the slower or smaller "protected" cruisers and all unprotected cruisers would be hopelessly outmatched; their only hope of safety would be in flight, and they could not flee because they have not the necessary speed. The revolution has come suddenly; four years ago there was not one such ship in commission; within a year from this time the number in commission or in the Reserve will be twenty-six.

"The principles, on which the present peace distribution of His Majesty's ships and the arrangement of their stations are based, date from a period when the electric telegraph did not exist, and when wind was the motive power, and it is a wonderful testimony to the strategical and political soundness of those principles that they have stood the test of time and met all the needs of the Service up to the present moment.

"In the opinion of the Board of Admiralty, however, the new conditions described above have necessitated a review and readjustment of this distribution of ships and arrangement of stations.

PRINCIPLES OF NAVAL CONSTRUCTION.

"In the study of this question the Board have endeavoured to benefit by the experience of the Navies of Japan and of Russia in the present war, and by the same light to review the principles on which the different classes of modern war-ships are constructed, and the features embodied in them. In order temporarily to assist the Board and the Director of Naval Construction in the elucidation of the problems involved, it has been decided to appoint a special Committee on Designs which will be composed of naval officers and scientific and professional experts, and will begin work early next year, the Board of Admiralty first laying down as a basis what they consider to be the fighting requisites of the desired types of war-vessels and the governing features of each type to which the other features shall be subservient.

DIFFICULTIES OF MOBILISATION.

"They have also at the same time endeavoured to overcome certain difficulties with which they have long been confronted in matters of mobilisation. It will have been noticed that, whenever a portion of the Fleet has been specially commissioned for manœuvres, the only difficulties which have occurred during these manœuvres have been in connection with the ships so specially commissioned. The arrangements in connection with the *personnel* have worked smoothly and quickly, and the ships have been commissioned and have proceeded to sea within the specified number of hours, but during the manœuvres the number of small mishaps in connection with the machinery of the specially commissioned ships has always been much in excess of that of the ships in commission. There has, however, never been any mystery as to the cause of this distinction. During the great expansion of the Fleet which has been taking place for the last fifteen years the Board of Admiralty have never been able to retain at home a proportion of the *personnel* of the Navy sufficient to keep the

ships of the Fleet Reserve in such perfect condition that on mobilisation for war they could feel confident that there would be no mishaps to the machinery on first commissioning, nor have the newly commissioned crews had sufficient opportunity to acquaint themselves with the innumerable details which go to make up what may be called the individuality of the ship. Year after year the Board have endeavoured to remedy this evil by proposing to Parliament large additions to the *personnel* (additions which Parliament has freely granted), but the increase in the number, size, and horse-power of the ships in commission has more than swallowed up the increase in the *personnel*, and consequently an adequate provision for the ships in the Fleet Reserve has not yet been made. It is not to be supposed that the importance of this matter has for one moment escaped the attention of the Board; the mishaps referred to are almost always such as can be repaired in the course of a few days, certainly always in the course of a few weeks; but it is not possible to exaggerate the importance of having the whole Fleet ready for war in the sense of being ready to deal an immediate blow—of having ready, in short, an instrument which in its every part will command the confidence of the admirals who have to use it, and of assuring the admirals in their turn that they have in their hands an instrument which will in no single point fail them. Hitherto, moreover, the firing practice of mobilised ships has left much to be desired; but as the guns' crews had not previously been associated together, more could not have been expected.

"The Board have endeavoured, and I believe successfully, to deal with these questions simultaneously. The ideals which the Board of Admiralty have always had before them have been that the peace distribution of the Fleet should be also its best strategical distribution for war, and that the mobilised ships should be in as perfect a condition of fitness for war as the commissioned ships. They now hope while maintaining the first ideal to realise the second, and at the same time to withdraw as far as possible from peace commission those vessels which, however useful in peace, would in war be found to be of inferior fighting efficiency or even a source of weakness and anxiety to the admiral.

THE CHANNEL FLEET.

"The present Home Fleet will change its name and henceforth be called the Channel Fleet. It will have its headquarters at home, and will consist of 12 battle-ships and a sufficient number of attendant cruisers. It will be commanded by a flag officer of the rank of admiral, or, if he has not yet arrived at that substantive rank, of the acting rank of admiral; the second in command will be a vice-admiral, the third a rear-admiral.

THE ATLANTIC FLEET.

"The present Channel Fleet will be renamed the Atlantic Fleet, and will be permanently based on Gibraltar. It will consist of 8 battle-ships and a sufficient number of attendant cruisers. The flag officer in command will henceforward be styled "Commander-in-Chief of the Atlantic Fleet," and he will be a vice-admiral or hold the acting rank of vice-admiral; the second in command will be a rear-admiral.

CRUISER SQUADRONS.

"Affiliated to the Channel and Atlantic Fleets will be Cruiser Squadrons, each under the command of a rear-admiral, and consisting of

six armoured cruisers. The First Cruiser Squadron will be affiliated to the Channel Fleet and the Second Cruiser Squadron to the Atlantic Fleet. These Cruiser Squadrons will, however, be detachable from the fleets to which they are affiliated either for special cruiser exercises or for special cruises.

"Under this arrangement the present separate South Atlantic Squadron will be no longer required and will disappear.

THE MEDITERRANEAN FLEET.

"The Mediterranean Fleet will consist of 8 battle-ships with a sufficient allowance of cruisers. It will, of course, remain based on Malta, and the Commander-in-Chief will be of the rank of admiral or hold the acting rank of admiral; the second in command will be a vice-admiral. The large cruisers attached to the Mediterranean station will be known as the Third Cruiser Squadron; they will be commanded by a rear-admiral, and will be occasionally detached for the same special reasons as in the case of the other squadrons.

REPAIRS.

"All the repairs of the Channel Fleet will be done in the home dockyards, those of the Atlantic Fleet at Gibraltar Dockyard, and those of the Mediterranean Fleet at Malta Dockyard; the aim of the Board will be to ensure that in the case of the Channel Fleet never more than two battle-ships, and of the Atlantic and Mediterranean Fleets never more than one, shall be in dockyard hands at the same time.

COMBINED EXERCISES.

"The Atlantic Fleet will be put under the orders of the Commander-in-Chief of the Mediterranean Fleet twice a year, and under the orders of the Commander-in-Chief of the Channel Fleet once a year, for combined exercises.

"I hope to deal with the question of the allotment of battle-ships to the China station in my Memorandum on the Navy Estimates.

CRUISERS IN EXTRA-EUROPEAN WATERS.

"The cruisers working in extra-European waters will be divided into three groups. The Eastern Group will comprise the cruisers of the China, Australia, and East Indies stations. The responsibility will rest on the Commander-in-Chief of the China station for the strategical distribution of those cruisers in time of war, so that they may at the earliest possible moment deal with all ships of the enemy to be found in those waters. The Cape of Good Hope Squadron will be a connecting link between either the Eastern Group and the Mediterranean cruisers or the Eastern Group and the Western Group. The Western Group of cruisers will consist of the cruisers under the command of the Commander-in-Chief of the North American and West Indian station and the mobilised cruisers with which he will be reinforced in time of war. At present the cruisers under the command of the Commander-in-Chief of the North American and West Indian station consist of his flag-ship, a first-class protected cruiser, and certain second and third-class cruisers. The Board have decided to withdraw from the station the less effective of those ships and to add to it the ships of the new Particular Service Squadron which they have decided to constitute, and of which the Commander-in-Chief of this station will be given the command.

THE TRAINING OF CADETS AND BOYS.

"Up to the present time the cadets from the "Britannia" in the second-class cruiser "Isis" and in the old armoured cruiser "Aurora," the youths in the "Northampton" and her tenders the "Calliope" and "Cleopatra," and the boys in the "Iris," "Medea," and "Medusa" have all carried out their training afloat independently. It has been decided to transfer them all to valuable modern fighting ships, and to combine them into one squadron for training under the present Commander-in-Chief of the North American and West Indian station. They will make periodical returns to England, but the climate of the North American and West Indian station, extending as it does from the Pole to the Equator, will give the admiral in command opportunities of organising their training under better climatic conditions than can be found anywhere else. The Particular Service Squadron will therefore consist of the "Ariadne," flag-ship, "St. George," "Hawke," "Gibraltar," "Isis," "Highflyer," and other vessels not yet appropriated. In time of war it will only be necessary to remove from those ships cadets or youths or boys still under training and to complete the crews with the small additions required for war.

SHIPS' COMMISSIONS REDUCED TO TWO YEARS.

"At present a ship is commissioned for three years, and this system prevails on all stations except those which are under the system known as home sea service. In the present Home Fleet, the present Channel Fleet, and the present Cruiser Squadron the ships are not commissioned for any definite period, but being within the category of home sea service are in a state of continuous commission, 25 per cent. of their crews being withdrawn every six months, and fresh entries from the dépôts, generally the youngest and last-entered seamen, taking their place. Even with ships in commission for three years the changes among the officers and men have been a constant and recognised evil, though, owing to the expansion of the Fleet, which has rendered it necessary to make constant calls on the ships afloat for ratings to be promoted or to attend the gunnery and torpedo schools, it has hitherto been an unavoidable one. It will, however, be readily believed that these changes have added greatly to the difficulties of the officers in keeping their ships efficient, especially in matters of gunnery. Greater still have been the difficulties which have confronted the officers of the present Home Fleet, Channel Fleet, and Cruiser Squadron, where the systematic changes of 25 per cent. every six months have been additional to the constant changes due to the general causes mentioned above, and the excellent results nevertheless produced deserve public recognition. The Board have now decided to adopt a new system, and to reduce the period of all commissions to two years. This system will be gradually applied to all vessels in commission, including the new Channel and Atlantic Fleets and the Cruiser Squadrons. When a ship has once been commissioned under this system no officer or man will be removed from her for any avoidable cause, and the only drafts which she will receive will be those required to make good unavoidable waste. At the same time, the distinction between foreign sea service and home sea service will be abolished, and the only conditions of service which will be recognised are home service and sea service—*i.e.*, service in the home ports or ashore and service afloat.

THE FLEET RESERVE.

"The following is the plan adopted for the reorganisation of the Fleet Reserve. The fighting ships will be organised quite separately from the obsolete or non-fighting ships. They will each have a captain, a second-in-command, and a proportion of the other officers, including engineer, gunnery, navigating, and torpedo officers. They will have a nucleus crew of two-fifths of their war complement, but in that two-fifths will be included all the more expert ratings, especially the torpedo ratings and the principal gun numbers, and each ship will periodically proceed to sea for the purpose of gunnery practice and of testing her machinery. They will be grouped homogeneously at the three home ports according as their destination may be determined for reinforcement in time of war. Each group so formed will be commanded by a flag officer, who will himself take the reinforcements in time of war to the fleet which they are to reinforce, and he and he alone will be held responsible that every possible step has been taken to reduce breakdown of machinery to a *minimum*, and that the fighting efficiency of his ships, when mobilised, is without flaw. In addition, there will be a sufficient margin of ratings kept at home to enable the Board to commission an emergency squadron without dislocating the schools or nucleus crews or having recourse to a general mobilisation.

THE FORTHCOMING MANŒUVRES.

"The manœuvres both in 1905 and in 1906 will be directed to the testing of this scheme of reorganisation. In 1905 movements of the fleet in commission and of a few mobilised ships will take place all over the world in view of hypothetical strained relations with an imaginary Power; in 1906 the supposition will be that war has actually broken out some weeks after the period of strained relations, and the Reserve Squadrons at the home ports will be actually mobilised, and will proceed under their respective rear-admirals to reinforce the fleets to which they have been previously affiliated. The hostile fleets will be represented next year by various big cruisers (as a skeleton enemy), which will start on unknown dates from unknown places to represent the movements of the imaginary Power. The Commander-in-Chief and other flag officers all over the world will have to act throughout on their own initiative; they will be responsible for keeping a continuous touch with the enemy and for continuous mutual co-operation; they will concert together beforehand their plans for mutual support, and the port admirals and other stationary officers must instantly comply with the requests of the admirals at sea. In no case will references to the Admiralty be permitted.

"It has been already stated that the cadets, youths, and boys under training are being transferred to modern fighting vessels. Similar action will be taken in the case of the more advanced training services, where modern cruisers will be substituted for the older ones at present acting as schools for navigation or as tenders to the gunnery schools.

"In order to provide the *personnel* for all these purposes a certain number of ships of comparatively small fighting value have been, or will be, withdrawn from commission, but care has been taken to leave enough ships on every station for the adequate performance of what I may call peace duties of Imperial Police, and the four Cruiser Squadrons will be employed to show the flag in imposing force, wherever it may be deemed to be politically or strategically advisable.

THE SINGLE OBJECT IN VIEW.

"In the reorganisation, a sketch of which I have given above, the Board have had but one object in view, and that is that on a declaration of war the fighting efficiency of the Fleet shall be complete and instantaneous. That the scheme will greatly increase the fighting efficiency of the Fleet there can, I think, be no doubt; it will also, I am happy to say, result in a very considerable economy on the Navy Estimates.

"SELBORNE."

December 6, 1904.

Vice-Admiral Sir W. H. May, K.C.V.O., is to hoist his flag on board the new first-class battle-ship "King Edward VII.," when he assumes command of the Atlantic Fleet; as the other ships of this class are completed they are to take the place in the Atlantic Fleet of the "Majestic" class, these ships in their turn taking the place of vessels of "Royal Sovereign" class in the Channel Fleet. The men of the "Caesar," at present the flag-ship in what is now the Atlantic Fleet, are to turn over to the "King Edward VII.," and the "Caesar" will then take the place of the "Royal Oak," as flag-ship of the Second-in-Command in the Channel, whose officers and crew will turn over to her.

Rear-Admiral H.S.H. Prince Louis of Battenberg is to hoist his flag on the 1st February on board the first-class armoured cruiser "Drake," in command of the 2nd Cruiser Squadron.

It is understood that under the new scheme of distribution, the remaining four battle-ships of the "Duncan" class are to be withdrawn from the Mediterranean, and will join the new Channel Fleet, which will consist of the six "Duncans," four ships of the "Majestic" class, with the "Triumph" and "Swiftsure," or 12 first-class battle-ships in all.

Like the South Atlantic, the Pacific station has been abolished; Commodore J. E. C. Goodrich is coming home, and the second-class cruiser "Buonaventure," which has recently been flying his broad pennant, is reported to have been ordered to proceed to China; the sloop "Shearwater" being the only vessel retained, with her headquarters at Esquimalt, for fishery protection duties.

The first-class armoured cruisers "Cornwall" and "Cumberland" were commissioned at Devonport and Portsmouth respectively for service with the 2nd Cruiser Squadron. The first-class cruiser "Gibraltar" commissioned at Portsmouth on the 14th ult. as sea-going training-ship for boys, and she will form one of the Particular Service Squadron, placed under the new Distribution Scheme, under the orders of Vice-Admiral Bosanquet, the Commander-in-Chief in North America; she takes the place of the three smaller cruisers, "Iris," "Medea," and "Medusa," as training-ships.

The second-class cruiser "Flora" arrived at Plymouth from the Pacific on the 9th ult., and will pay off at Devonport. The second-class cruiser "Isis," sea-going training-ship for boys, paid off at Portsmouth on the 13th ult. The second-class cruiser "Hermione," with the relieved crew from the "Fox," in the East Indies, arrived on the 15th ult. at Plymouth. The second-class cruiser "Tribune," from the West Indies, paid off on the 16th ult. at Chatham. The second-class cruiser "Furious" arrived on the 20th ult. at Portsmouth from the Mediterranean. The third-class cruiser "Pandora," from the Mediterranean, paid off on the 21st ult. at Portsmouth. The sloop "Espiegle" arrived on the 29th ult. at Plymouth from China.

Orders have been given for the first-class cruisers "Hawke" and "Gibraltar" to proceed to Devonport in time to arrive not later than 11th January, to join the Particular Service Squadron. As soon as the complement of the first-class cruiser "St. George" has been adjusted to her training-ship numbers, and the youths from the "Cleopatra" have been taken over, and when the cadets have been embarked in the second-class cruiser "Highflyer," the "Hawke" will take the "St. George," "Gibraltar," "Highflyer," and "Isis" under her orders and will proceed in company with them direct to Dominica, where the squadron will join the flag of the Commander-in-Chief of the North America and West Indies station. Vice-Admiral D. H. Bosanquet, the Commander-in-Chief, is due to arrive at that port on 3rd February.

FRANCE.—The following are the principal promotions and appointments which have been made: Rear-Admiral—J. J. Bugard to Vice-Admiral. Capitaines de Vaisseau—L. R. Saget de la Jonchère, L. H. Thomas, L. R. De Marolles to be Rear-Admirals; F. L. Grosse to "Magenta"; M. J. De la Croix de Castries to "Guichen"; M. A. Lespinasse de Saune to "Dupetit Thouars." Capitaines de Frégate—C. H. Archimbaud, M. E. De Kergrhen de Kermadio, C. T. Ozanne, P. M. Vincent, D. M. Gauchet to be Capitaines de Vaisseau; F. J. De Bon to "Du Chayla."—*Journal Officiel de la République française*.

Rear-Admiral Bugard struck his flag on board the first-class armoured cruiser "Gloire" at Brest on the 5th ult., and left for Paris to take up his new duties as a Member of the Consultative Committee of the Navy; his successor, Rear-Admiral Puech, hoisted his flag the same day on board the "Gloire," and took over the duties of Commander of the Cruiser Division of the Squadron of the North.

Rear-Admiral Bugard was promoted to Vice-Admiral on the 28th ult., passing over the heads of nine of his seniors on the list. Although he was only three years a Rear-Admiral he is well on in his sixty-second year. Rear-Admiral Saget de la Jonchère, the senior of the three captains to get his flag, is nearly fifty-nine, and has forty-three years' service; Rear-Admiral Thomas is the same age, but has a year more service, while De Marolles, the junior of the batch, who goes over the head of twenty-six of his seniors, is in his fifty-fourth year, with thirty-eight years' service.

The second-class cruiser "Descartes," with the two destroyers "Sabre" and "Francisque," and torpedo-boats Nos. 245, 246, 247, 248, 249, and 254, arrived at Saigon on the 26th ult.

The first-class cruiser "Guichen" has been unexpectedly commissioned at Brest to relieve her sister-ship the "Chateaurenault" in China. Both ships were laid down as "commerce destroyers" in 1895, when the late M. Félix Faure was Minister of Marine. They were intended to steam 23 knots, but both ships had a great deal of trouble with their engines, and only succeeded in reaching their designed speed after months of trials; and when, during the Boxer rising in China (1900), the "Guichen" was detached from the Northern Squadron to reinforce the squadron in China, she was only able to average 15 knots on the way out. Although both ships have a displacement of 8,000 odd tons, their armament is ludicrously weak, consisting of only two 6·4-inch Q.F. guns, six 5·5-inch Q.F. guns, with ten 3-pounders, with no protection except shields. The "Guichen" was to have relieved the "Chateaurenault" during the summer, but the latter ship has developed such serious structural defects that her return home is imperative.

Increase in the Personnel.—The Officers (Executive) Corps, which in 1899 numbered 811, has now risen to 1,250, showing an increase of 439 in the five years. During the same period the number of Engineer officers has risen from 128 to 223; of Surgeons, from 142 to 197; of Paymasters, from 104 to 164. Similarly the number of Warrant Officers has risen from 1,058 to 1,587; of Petty Officers, from 4,740 to 7,111; and of seamen from 17,597 to 24,820. It is contemplated to raise the number of the officers and men to 60,000 by 1,817, when the Naval Programme of 1900 has been carried out.

Dockyard Notes.—Work is being pushed on with the new first-class armoured cruiser "Victor Hugo," which was launched at Lorient on 30th March, but want of space prevented our giving details of her at the time. Her dimensions are as follows: — Length, 491·15 feet; beam, 70·21 feet; draught, 25·23 feet; displacement, 12,600 tons; engines, 27,500-H.P., supplied by 28 Belleville boilers; speed, 22 knots. When launched she was already fitted with her Belleville boilers. She was on the stocks for 13 months, some delay having been caused by the transfer to Lorient of the material from Toulon, where it was intended originally that she should be built. Protection is afforded by a complete water-line armour belt 6·7 inches thick amidships, tapering to 39 inches fore and aft. The belt will reach to 7·54 feet above the water-line, and from there the protection will be continued to the casemates of the 6·5-inch guns by 4·93-inch armour. The two armour decks will start respectively from the top and the bottom of the armour belt, the space between them being divided into numerous water-tight compartments. Her armament will consist of four 7·6-inch Q.F. guns, two in each turret fore and aft, and sixteen 6·5-inch Q.F. guns, twelve in six turrets and four in casemates; also five torpedo-tubes, of which two will be submerged. She will have four funnels and two masts, but only one with a fighting top. She is to be placed in dock this month at Lorient, where she is under construction, in order to have her propeller shafts and screws fitted and her under-water fittings seen to; she will then go under the shears to receive her military masts. She will be in dock and basin about three months.

The "Jules Michelet," a sister-ship to the "Victor Hugo," also building at Lorient, and with which rapid progress is now being made, has been launched, a new and larger cruiser ("C 18") will be laid down on the vacant slip. Provision has been made in this year's Estimates for a first vote for this vessel, which is to have a displacement of 14,000 tons odd. The "Jules Michelet" is to be fitted with the Guyot Du Temple small-tube water-tube boilers, and with the "Jules Ferry" is the only ship of the 1900 programme to have this type of boiler, which has been generally discarded in favour of the large-tube Nielausse and Belleville boilers.

The new first-class battle-ship "Patrie," which is completing at the La Seyne Yard, Toulon, is to receive as part of her armament a new and more powerful type of 17·7-inch torpedo, the pressure in the air chamber being 2,133 lbs. instead of 1,280 lbs. to the square inch. The new torpedo will be supplied to all battle-ships following the "Patrie," and also to the "Jules Ferry" and all later cruisers, as well as to the "Carquois" and all the later torpedo-boats, the submarine "Q47" and the new ones to follow. The new torpedo, however, is so heavy that it will be awkward to handle in the smaller boats.

The Committee appointed to enquire into the feasibility of cutting a channel for torpedo craft through the isthmus of the Sablettes at Toulon has reported in favour of the work being done. This will give a second exit or entrance to the port; the width of the channel will be 82 feet, and the depth 16·4 feet. The sides will be vertical and faced with stone. On the sea front the entrance to the channel will be protected by two moles. A strip of land 80 feet in width will be acquired for the State each side of the canal. The estimated cost of the work will be about £40,000.

New Type of Cruiser.—M. Bertin, Director of the Technical Section of Naval Construction, has just submitted for the consideration of the Minister of Marine plans of a new type of scout cruiser of 1,600 tons displacement. These new cruisers are of the new English "Scout" type. They will be 230 feet long, with a 13 feet draught of water. The engines are to develop 3,800-I.H.P., which should give a speed of 18 knots, and enable them to run for 7,300 miles without having to coal. Their armament will consist of four 5·2-inch Q.F. guns, placed in sponsons, and four on deck. They will also have seven torpedo-tubes, of which two will be submerged.

Torpedo Experiment Against Submarines. — The Naval Authorities recently carried out an interesting experiment to ascertain whether the explosion of a torpedo in the vicinity of a submarine exercises any injurious effect upon another torpedo lying alongside the vessel. The submarine anchored off Cape Petet, and the torpedo, containing a charge of 100 kilos. (220·4 lbs.) of gun-cotton, was fired at a distance of 50 metres from the submarine, besides which, exposed to the full force of the exploding torpedo, was placed the second weapon. Not the slightest damage was caused by the explosion.

New Submarines.—Progress is being made with the new submarines "Eméraude," "Opale," and "Rubis," designed by M. Maugas, who also designed "Z." These boats will be the largest submarines yet constructed, and their dimensions are as follows:—Length, 146·5 feet; beam, 12·8 feet, with a displacement of 422 tons. They will have two propellers, and the motive power will be gas or steam on the surface and electricity from accumulators when submerged. The engines will be of 600-H.P., giving a speed of 12 knots. They will carry six torpedo-tubes, and will be more habitable than previous types, and have a considerably increased radius of action.

The Indiscipline in the Fleet and Dockyards. — The discipline among the workmen in the naval arsenals and their productive power has now become a serious question. Things have come to such a pass at Brest that Vice-Admiral Mallarmé, the Préfet Maritime, has been openly subjected to the most insubordinate abuse by some of the workmen, notably by a *commis de la marine*, named Goude, who has been a leader in these attacks. Vice-Admiral Mallarmé has demanded the punishment and dismissal of this man, who professes to have the support of M. Pelletan, Minister of Marine, and failing a satisfactory reply from M. Pelletan, he has sent in his resignation as Préfet Maritime.

The workman at Brest is said to be by nature pious, hard-working, and obedient; but whereas he formerly adored the Deity, he is now a fervent adherent to the doctrines of the apostles of humanity; the principle of

equality is now his religious ideal, and it follows that all supporters of authority are heretics, whom he detests just as formerly he hated a Protestant or a Jew.

At Toulon the workman is of a different stamp; the influences of the softer climate cause him to be contented with little, provided he is let alone and allowed to take things easily. A workman, therefore, who could gain 6½ francs a day in a private yard, is willing to work in the arsenal for half the sum, which is sufficient to deliver him from the cares of existence. He does not call his superiors "gold-laced brutes," as his fellow at Brest, but looks upon them simply as encumbrances and disturbers of his peace. He laughs and jeers at his foreman, and when found fault with replies that if the foreman finds work to do in watching him, it will be nice employment for him to watch the foreman.

Among the workmen at Toulon the "Syndicat Rouge" is the most powerful trade organisation, and though but 2,500 of 7,000 workmen employed in the arsenal belong to it, the majority is, nevertheless, completely in the hands of the minority, which imposes its authority by menaces, and uses its influence in obtaining promotions and favours for the workmen. The "Syndicat" is semi-political, and controls certain *députés* in Parliament.

The situation at Toulon is serious, perhaps more so than at Brest, as these evils are chronic and long-standing, and it seems almost impossible to overcome them and recall the workmen to habits of industry and obedience. It is stated that the productive powers of the arsenals have been seriously reduced by the introduction of the 8-hours' day and abolition of piece work. At Brest, M. Albaret states that these changes mean a loss in production of 25 per cent.

As an example, a comparison is given between the two battle-ships "République" and "Démocratie," both built at Brest:—

		"République."	"Démocratie."
Laid down	- - -	Dec. 1901.	1st May, 1903.
Time on the stocks	-	9 months.	12 months.
Number of days' work	-	255,000	422,500
Tons at launching	-	4,320	5,100
Days' work per ton	- - -	59	83

From this it appears that 24 days per ton less were required for the "République."

At Toulon the officials consider that the introduction of the 8-hours' day causes a loss of time of from 1 hour 15 minutes to 45 minutes, as each time work commences some 20 minutes are lost, and the men dawdle over their work, and knock off some time before they have to leave the work-shops. An example showing their leisurely way of working is given. A ship had been put into dry dock to have her bottom re-coated as quickly as possible, 20 seamen being told off to paint one side and 40 workmen the other. In the evening the sailors had finished their side, but the dockyard-men took three days to complete theirs.

What threatened to be a serious strike broke out among the workmen in the dockyards at Lorient and Brest at the latter end of November. It was promptly put down by the vigour with which the Minister of Marine acted, a vigour with which no one had credited M. Pelletan, and which caused the strikers a good deal of astonishment. He gave the men two days to return to their work, intimating that all who failed to return would be summarily dismissed. This notice had the desired effect, and caused the collapse of the strike.

As regards the want of discipline in the French Navy, Vice-Admiral Caillard, commanding the Squadron of the North,

considers this to be greatly due to the new and much lighter scale of punishments introduced by M. Pelletan in 1903, which are quite inadequate for serious offences. He also says that the *sous-officiers* are now afraid to punish their men for fear of retaliation when on shore, and this not unreasonably, as there exists in ships' companies a band of self-styled "Apaches," who terrorise the *sous-officiers*.—*Le Yacht*, *Le Temps*, and *Le Petit Var*.

MILITARY NOTES.

PRINCIPAL APPOINTMENTS AND PROMOTIONS FOR DECEMBER, 1904.

Lieut.-General.—Lieut.-General J. F. Owen, C.B., to be General.

Major-General.—Major-General O. H. A. Nicolls to be Colonel Commandant, Royal Artillery.

Colonels.—Captain and Brevet Lieut.-Colonel (local Brigadier-General) Sir W. H. Manning, K.C.M.G., C.B., 51st Sikhs (Frontier Force), Inspector-General the King's African Rifles, to be Colonel. Major and Brevet Lieut.-Colonel T. Capper, D.S.O., the East Lancashire Regiment, to be Colonel. Lieut.-Colonel A. Eardley-Wilmot, R.H.A., to be Colonel. Lieut.-Colonel (temp. Colonel) H. Goad, I.A., Director-General Army Remount Department in India, is granted the substantive rank of Colonel in the Army. Colonel (temp. Surgeon-General) W. F. Stevenson, M.B., C.B., R.A.M.C., Professor of Clinical and Military Surgery, Royal Army Medical College, to be an Honorary Surgeon to the King.

HOME.—*Report on Trial of the Short Rifle by the Army and Navy.*—For purposes of trial, 1,050 rifles were made and issued to three cavalry regiments, seven infantry battalions, the Royal Navy and Royal Marines. The test extended over 3 months, and reports were made upon the accuracy, rapidity of loading by charger, shooting, advantages of a long handguard, and handiness of the rifle; also as to the desirability of an adjustable foresight, hooded or unhooded, whether it should be a bead or barleycorn, and whether the lever type of backsight was preferred to the "H" pattern on long rifle. The question of a windgauge; the general working of the bolt mechanism, including the ease or otherwise with which it could be assembled or stripped; the improved safety catch and drag pull-off; and the recoil, as compared with that of long rifle, were also considered. The influence of the shortening of the rifle by 5 inches on the use of the bayonet also received attention.

The reports showed that the accuracy of the rifle was satisfactory; and that the new weapon was superior to the Service rifle in handiness, rapidity of loading, and firing. But, as the Navy considered that a cut-off was necessary, this (with a piling swivel subsequently asked for) is fitted to all naval rifles. From the reports received, the Small-Arms Committee recommended the rifle as suitable for universal use; they were of opinion that the barleycorn should be adhered to, pending further trials with the other patterns of foresight, and that the sight should be adjustable with open-topped hood. The lever type of backsight without windgauge was recommended (a more satisfactory type of windgauge has now been devised and has since been adopted), and a long handguard was to be fitted. The charger system of loading was also

recommended, the 10-round magazine being retained, but with small modifications to facilitate loading and clearing the magazine of sand, etc. The mechanism was considered satisfactory, and the Committee concurred in the omission of the cut-off, but were of opinion that the mechanism should be capable of taking it should experience show it to be necessary; they were also agreed as to the drag pull-off recommended. They considered the slight increase in the recoil to be unimportant, and they advised that the bayonet should be of same length as that for the long rifle.

A rifle, as recommended by the Committee, was then made and approved, and arms are now being manufactured to this pattern with a windgauge.

Further tests of this rifle, chiefly for its behaviour in sandy, dry climates, were made in Somaliland; 100 of these weapons, which were first tried at home, being sent out for the purpose. The arms stood the test well; the men were reported to like the rifle and to shoot well with it, the increase of recoil being imperceptible; the lightness and convenience in handling gave universal satisfaction; the complete casing of the barrel in wood was fully appreciated.

Trials were also conducted at Hythe to compare the value of charger loading and single loading from bandolier; these gave most satisfactory results in favour of the former, and tests of accuracy of sighting at long ranges were also carried out.

Trials have been made at Hythe to test the accuracy of the short rifle in comparison with the long Service rifle and several foreign military rifles. The following are the results:—

Country.	Figure of Merit.*			
	200 yards.	500 yards.	1,000 yards.	1,500 yards.
France ... ... ...	.33	.58	1.29	3.42
Germany ... ... ...	.35	.77	1.52	4.02
Italy ... ... ...	.27	.73	2.04	3.04
Great Britain—				
(a) Long rifle ... ...	.27	.62	1.72	4.43
(b) Short rifle ... ...	.21	.71	1.21	2.99

*The "figure of merit" represents the average deviation of the bullet from the centre of a group of shots; the lower the figure of merit, therefore, the greater the accuracy of the rifle.

By order of the Army Council,

E. W. D. WARD.

WAR OFFICE,
20th December, 1904.

Rearorganisation of Military Commands. — A Special Army Order, issued on the 5th January, deals with the reorganisation of military commands and staff in the United Kingdom. The Order is divided into 3 sections, dealing respectively with command, duties of commanding officers, and staff and regimental duties. The United Kingdom—exclusive of London, which will constitute an independent district—is divided into 7 commands, as follows:—Aldershot, with headquarters at Aldershot; Southern, with headquarters at Tidworth; Eastern, with

headquarters at London; Irish, with headquarters at Dublin; Scottish, with headquarters at Edinburgh; Northern, with headquarters at York; and Welsh and Midland, with headquarters at Chester.—*Précis from the Times.*

CHINA.—Existing Condition of Military Affairs.—In the discussion of the possibilities which might occur during the prolonged course of the war in the Far East, the armed strength of China would conceivably be taken into consideration, and in doing so every soldierly quality is frequently denied to the Chinese troops. Nothing could be more erroneous than this point of view. Against it may be set the following facts: that for many years German instructors in China have been laboriously engaged in active military work, and that for two years nearly 200 Japanese officers have been in the Chinese service in order to train an efficient Army for the neighbouring nation. In order to obtain an accurate picture of the, even at the present day, somewhat complicated condition of Chinese military matters and of the troops available for the defence of the country, it is best to strictly discriminate between the old and the new Army, and to draw one's conclusions for oneself. To the old Army belong (apart from the Mongolian landsturm and the Thibetan Militia, which need not here be taken into consideration) the Manchu, or "Banner troops," and the "Green Flags," or provincial troops. Details of the origin and former organisation of these troops have already been given in the Military Notes in the JOURNAL for July, 1903.

It is evident, without further words, that the great number of the above-mentioned troops could advance no pretensions as an efficient military force, and that therefore an entirely new army on a modern basis must be formed if the military consideration of the Middle Kingdom was to be of any importance. Old Li-Hung-Chang was called upon to solve these difficult problems. He had already proved himself a saviour in time of need, and it was owing to earlier influence that German instructors had been obtained for training the Chinese Army. Under this guidance the best elements of the Banner and Provincial troops were gradually formed into two Armies, which, under the designation of Pei-yang Army in the Pe-chi-li province, and Hu-peí Army in the province of the same name, form the élite of the present Chinese Army, and are destined to carry the land forces of the country to a new prime. Li-Hung-Chang did not live to see the consummation of his work, for he died before it first began to bear fruit and discipline and order obtained in the ranks of the newly raised troops. But Chang-Shi-Tung, the present Governor-General of the Hu-peí province, as well as Wang-Shi-Tai, the existing Viceroy of Pe-chi-li, have taken up Li-Hung-Chang's work with the greatest zeal, and, supported by a numerous Japanese personnel, and with the help of individual military instructors, have already gained very respectable results. Especially conspicuous are those obtained by Wang-Shi-Tai, whose Army, with the station of Wu-tang, of 7,700 men and 60 guns, is now reckoned the élite of the Chinese Army. The Pei-yang Army, too, enjoys a good reputation, but it still lacks uniformity in its training, and in its methods of the performance of military duties. This failure is partly accounted for by the fact that the 8 groups, into which the Army is divided, are quartered great distances from one another, and the authorities have not yet been able to find a sufficient training personnel for each group. The best trained of this Army, whose combined strength amounts to 37,000 men and 194 in part new guns, are the North China

troops, which, with 9,030 men and 45 guns, have their headquarters in Pao-ting-su, and at present guard the frontier against Russia on the Liao-ho. They would, therefore, too, be those troops on whose support in the first line the Japanese could count upon if ever there should be an alliance between the two kindred nations. The right and left wings of the Wu-wei Corps—two other groups of the Pei-yang Army, which consist of 16,280 men and 82 guns, are quartered in Pekin, Nu-chang, and Chung-chou—are also favourably mentioned, after they had latterly been trained under Japanese officers. The "Strong" Corps, the Huei Corps, and the "Brave" Corps, numbering altogether 9,000 men, appear to be still somewhat backward, probably because their instructors—discharged Chinese military cadets—are too young and inexperienced for their heavy task.

To all appearance, the authorities are not satisfied to remain as they are, and to content themselves with present results. On the contrary, orders have been issued that troops in other provinces should be trained on the Pei-yang and Hu-pe model. In the meanwhile it is as well to remember that the military equipment of China, the work in the perfecting of her Army, and the results achieved, are by no means such poor stuff as there is an inclination still to consider them from reports drawn from former times. Though the work of reform is not yet completed, it behoves us, nevertheless, to follow the same with attention, so as not to arrive at a distorted judgment.—*Militär-Wochenblatt*.

GERMANY.—The Two Years' Period of Service.—The year 1905 will see an agitation in the Reichstag on the question of the legal registration of the two years' period of service which has, as a matter of fact, been applied in Germany since 1893 in the infantry and field artillery, whilst the three years' period of service has been carefully maintained in the cavalry and horse artillery. It is unnecessary to enter on the motive which has caused Germany to adopt this method, which is merely a desire to cause one third more young men than the three years' law permitted to serve with the colours and to be sent trained to the Reserve. The German Government has already profited by the concession thus made to increase to 80,000 the number of its re-engaged non-commissioned officers, and to considerably increase its peace strength. It does not intend to stop there, but has the firm intention of obtaining many concessions from the Reichstag in exchange for the legal registration of the two years' period of service, in order to compensate for the inconvenience caused in military centres. This promises to carry with it a serious increase in military expenditure, if the *Neue Militärische Blätter* is to be believed. According to that journal the following is what competent military authorities consider as a suitable equivalent for the legal registration of the principle of the two years' period of service:—

"It is especially necessary to provide the troops with a cadre of numerous and capable non-commissioned officers,¹ which can only be obtained by an improvement in their material position, that is to say, by means of better pay, pleasanter quarters, good non-commissioned officers' clubs, by the absolute certainty of civil employment when they leave the Service, etc. Further, the infantry require musketry ranges, and

¹ It must be remembered that the German Army has already 80,000 re-engaged non-commissioned officers.

especially ranges permitting of firing under service conditions, and money to hire ground where they can carry out field practices of great scope in open country. The number of live and blank cartridges which they are allowed is much too limited. The manœuvre grounds should, in order to fulfil present requirements, be enlarged and altered, and corps should have at their disposal larger sums to pay for damages in order that they may train men in skirmishing on broken ground, which is at present almost impossible. This results, in all units, in men showing themselves unable to adapt themselves to the ground, which is the only method of avoiding great losses in action. Many army corps have not yet got large camps of instruction, where regiments and brigades can be trained by their commanders; this want should be remedied as soon as possible. The scientific troops require increased and improved means of instruction for their special services. The field artillery contends unceasingly with the difficulty of making good horsemen of its gunners and scouts in two years' period of service; it also requires an increase in its horse effectives, which are too restricted. The field artillery, as well as the foot artillery, suffers as much as the infantry from an insufficient supply of ammunition; an increase in this respect is very necessary.

"Men detached for supernumerary duties, such as clerks, orderlies, servants, etc., should be reduced to a minimum, and replaced when possible by civilians. Whoever, through his own fault, shall have missed an appreciable period of training—more than two weeks, for instance—must complete as many days' supplementary service in addition to the two years. It would be of the greatest advantage if, in place of the third year's service, a new period of training for Reservists was introduced of from 6 to 8 weeks; in order to render this less onerous, this period might be carried out in the 4th instead of in the 3rd year. This would make it possible to conduct the Autumn Manœuvres on a war footing, and would give both men and commanders a training similar to that in war time, such as is known in no other Army. Officers and candidate-officers of the Reserve would be called out to take part in these manœuvres."

The official journal, the *Norddeutsche Allgemeine Zeitung*, has just published the scheme of the law with regard to the legal introduction of the two years' period of service. According to Article I., men of the cavalry and horse artillery will continue to remain three whole years with the colours. Men serving in the other branches of the Service will remain with them uninterruptedly for two years. Should it become necessary to reinforce the Army in peace time, says Article II., the Emperor may retain to the Service for the third year those men who were sent to their homes at the end of their second year of service. Men belonging to dismounted branches of the Service and to the artillery, who have voluntarily completed three years with the colours, will only remain, as in the case of men of the cavalry and horse artillery, for three years in the 1st Levy of the Landwehr. Men of the Landwehr infantry will have to take part, during their service in the 1st Levy, in two training periods, the duration of which may vary from 7 to 14 days; Landwehr units will be formed from them. The Landwehr cavalry, in exchange for three years' completed service in the Regular Army, has no training periods in peace time. Men of the Landwehr of other branches of the Service will have to put in the same training periods as the infantry; they will be either formed into special units or be trained with units of the Regular Army, according as the interests of the Service require. Article III. notifies that the law will be put into force from 1905. The introductory statement mentions that the increase in the peace

effectives and the formation of new units are indispensable in order to maintain the German Army equal to its present requirements. The formation of new cavalry regiments is demanded, into which the present mounted Jaeger squadrons will be absorbed. Fresh engineers and foot artillery units will also be raised, and the formation of a fourth telegraph battalion will be asked for. The total increase of the peace effective provided for will amount to 10,399 men. The following will be the new formations:—

- 8 infantry battalions.
- 9 cavalry regiments.
- 2 foot artillery battalions.
- 1 telegraph battalion.

The increase of expenditure asked for from the Reichstag for the legalisation of the two years' period of service will amount to 73,913,116 marks annually.—*La France Militaire*.

SPAIN.—Reorganisation of the Military Districts of the Balearic and Canary Islands.—A law of the 17th July last authorised the Spanish War Minister to introduce into the organisation of the Army, within the limits of the Budget voted by the Cortes, a series of reforms, among which figure:—"The reorganisation of the troops of the recruiting areas and of Reserves." By virtue of this authorisation, General Linares has recently proceeded with the following reorganisation of the forces of the Balearic and Canary Islands by means of two Royal Decrees, dated the 11th and 20th August, 1904, respectively:—

I.—Reorganisation of the Balearic Military District.

A. *Organisation of the Command.*—The Balearic Isles will form a military district under the orders of a lieut.-general, having the title of Captain-General of the Balearic Isles, and possessing all the prerogatives that the regulations in force give to that post; the duties of second-in-command of the district will be exercised by the senior general of division in the islands. The Balearic district will be divided into 2 military governments, one of which will consist of the island of Minorca, and the other of the islands of Majorca, Iviza, Formentera, and Cabrera. A general of division will be at the head of each of these governments; these general officers will at the same time exercise, one the duties of governor of the garrison of Mahon, and the other those of governor of the garrison of Palma in Majorca; a brigadier-general will be attached to the governor of Minorca, who will carry out the duties of second-in-command. The captain-general will carry out the inspections of the district troops; the military governors will exercise the functions of sub-inspectors of the Regular and Reserve troops and of the recruiting areas of their respective commands. Military commandants, subordinate to the governors, will, in addition, be placed in the islands of Iviza and Cabrera, at Fornells in Minorca, and in the various forts and detached works. To the post of Captain-General of the Balearic Isles will be attached a staff, and a judge-advocate's department. The governor of Minorca will also have a staff and a judge-advocate's department; the governor of Majorca, on the other hand, will only have a secretariat in place of a staff, and in which there will be no officer of that corps.

B. *Organisation of Duties.*—To each of the governments mentioned above there will be attached, under the orders of their respective governors,

an artillery and an engineer command, a commissariat branch, a medical staff, and a military chaplaincy. The colonel commanding the artillery of each government will exercise at the same time the command of the troops of that branch of the Service and the direction of the government artillery park; he will have a secretary and 2 field officers under him, one of whom will be responsible for the returns of the troops, and the other for those of the park. The commandant of the engineers of both military governments will carry out at the same time the command of the engineers and the direction of the technical duties of that branch of the Service; he will have 2 field officers under him, one of whom will be responsible for the duty details in the government offices, and the other will carry out the duties of senior officer of the troops which, in each island, will form the only administrative unit. The head of the medical staff of each military government will be at once principal medical officer of the military hospital in the capital of that government and director of the government sanitary park.

C. *Composition and Organisation of the Troops.*—The troops attached to the garrison of the Balearic Isles will consist of:—1st, for Majorca, of the Palma and Inca infantry regiments, a squadron of Majorca chasseurs, the artillery and engineers of their respective Majorca commands, and an administrative and a medical section; 2nd, for Iviza, the Iviza infantry battalion and a garrison artillery section detached from the artillery at Majorca; 3rd, for Minorca, the Mahon infantry regiment, a Minorca squadron of chasseurs, the artillery and engineers of their respective Minorca commands, and an administrative and medical section.

The Palma and Inca regiments will each consist of 3 battalions, commanded respectively by an officer of the rank of major; each battalion will be composed of 8 companies, the two first consisting of men of the Regular Army, the two following of men of the 1st, and the four last of men of the 2nd Reserve. The two first will alone have this complement of both officers and men, the other six merely consisting of cadres, half the captains' places and all those of subaltern company officers being filled by paid officers of the Reserve.¹ The duties of paymaster, adjutant, and quartermaster will be carried out by the officers of the 1st Reserve companies; officers of these companies who are not provided with any special employment will serve alternately with the Regular companies. The Iviza battalion will consist of 4 companies, 1 of which will be composed of Regulars, 1 of the 1st and 2 of the 2nd Reserve. The Mahon regiments will be formed of 3 Regular battalions of 4 companies each; these battalions will be commanded by lieut.-colonels, and maintained on a war footing as soon as the budgetary resources will permit. The troops belonging to the Majorca and Minorca artillery commands will be composed in each military government of:—1. Garrison troops, organised into batteries in accordance with the work to

¹The position of a paid Reserve was formed to reduce the crowding of the cadres of the Regular Army—a crowding resulting from a long period of civil wars. Officers of this Reserve are entitled to four-fifths of their pay in the Regular Army; they are absolutely distinct from the Regular Army cadre, and are attached either to the personnel of recruiting areas or to Reserve regiments, but are not obliged to serve in peace time unless called to the colours. The recruitment of this class of officer has ceased, and they are gradually 'dying out.'

be carried out; these batteries are grouped into brigade-divisions, each brigade-division being under the command of a field officer. 2. A mixed field artillery brigade-division, consisting of a field and a mountain battery, the first sections of which, according to the new order, will alone receive their complement in men and horses. The troops composing 10 Majorca and Minorca engineer commands consist in each military government of a sapper and a telegraph company.

D. Recruiting and Reserves.—The recruiting will be by districts for units of all branches of the Service attached to the Majorca and Iviza garrisons, as well as for the units attached to the Minorca garrison, with the exception of the Mahon Regiment, which consists exclusively of cadres and men from the Peninsula; in the case of insufficiency of local resources, the different Balearic contingents may be completed up to strength from the recruiting areas of the Peninsula. From a recruiting point of view, the islands are divided into 4 areas: Palma, Inca, Iviza, and Mahon. The command of the Palma, Inca, and Iviza areas will be held by the commander of the infantry unit recruited in each of the respective districts; that of the Mahon area by the colonel of the regiment of that name. A recruiting office will be established in each area, the cadres for which will be respectively furnished by the infantry units recruited in the area itself, and by the Mahon Regiment for the area of that name. Recruits of the Palma and Inca regiments and those of the Iviza battalion will be drafted into the Regular companies of those corps; at the expiration of their period of active service, they will pass into the 1st Reserve companies, where they will remain for 3 years; they will then be sent to the 2nd Reserve companies until their final discharge. The Mahon Regiment will be exclusively recruited from the Peninsula; on the expiration of their term of active service the men of that regiment will be attached to those Reserve regiments of the Peninsular recruiting areas in whose district they have elected to reside. Men of artillery and engineer 1st Reserve will continue to be included in the units in which they have completed their active service; on transfer to the 2nd Reserve they will be attached to the staff of the troops of their arm. Men of the 1st and 2nd Reserve of the cavalry squadrons and of the administrative and medical sections will continue to belong, until finally discharged, to the unit in which they completed their term of service. Reserve officers residing in the islands, and not forming part of the cadres of the different Balearic troops, will be attached to units of their branch of the service in garrison on the island where they themselves reside. The peace effective of the troops of the Balearic Islands will consist of 379 officers, 4,595 men, 30 salaried workmen, 387 horses and mules, 54 wagons (not including the engineer rolling stock), and 20 pack animals.

II.—Reorganisation of the Canary Islands Military District.

A. Organisation and Command.—The Canary Islands will form a military district under the command of a lieut.-general, with the title of Captain-General of the Canaries, and possessing all the prerogatives that the regulations in force assign to that office; the duties of second-in-command of the district will be carried out by the senior general of division in the islands. The district of the Canaries will be divided into 2 military governments, of which one, called Tenerife, will consist of the western group of the islands, viz., Tenerife, Las Palmas, Gomera, and Hierro, and of which the other, called the Grand Canaries, the eastern group, viz., Grand Canary, Lanzarote, and Fuerteventura. At the head of each of these governments will be placed a general of division; these general officers will exercise, at the same time, the one the functions

of governor of the garrison of Santa Cruz de Tenerife, and the other those of governor of the garrison of Las Palmas. The military governor of the Grand Canaries will have a brigadier-general as second-in-command. The respective duties of the captain-general and of the military governors of the Canaries, as regards inspections and recruiting, will be similar to those of the similar functionaries of the Balearic Isles. Military commandants, subordinate to the governors, will be installed in the islands of Las Palmas, Fuerteventura, Lanzarote, Gomera, and Hierro, the military command in the latter place being exercised by the captain of the Reserve company which will recruit there. To the office of Captain-General of the Canaries will be attached a staff and a judge-advocate's department. The military governor of the Grand Canaries will also have a staff and a judge-advocate's department; the military governor of Tenerife, on the other hand, will only have a secretariat in place of a staff, but which will include no officer of that corps.

B. *Organisation of Duties.*—To each of the governments mentioned above will be attached, under the orders of their respective governors, an artillery and an engineer command, a commissariat branch, a medical staff, and a military chaplaincy. The heads of the various branches of the services enumerated above are similar to those of the same functionaries of the Balearic Isles, and the *personnel* under their orders will have the same composition.

C. *Composition and Organisation of Troops.*—The troops in garrison of the Canaries will consist of :—1. For the Island of Tenerife, the Tenerife and Orotava infantry regiments, a squadron of chasseurs, the artillery and engineers of the military government of the island, an administrative and a medical section. 2. For the Island of Las Palmas, a battalion of chasseurs. 3. For Gomera-Hierro, an infantry battalion. 4. For the Grand Canaries, the Las Palmas and Guia infantry regiments, a squadron of chasseurs, the artillery and engineers belonging to the military government of the Grand Canaries, an administrative and a medical section, with ambulance. 5. For Lanzarote, an infantry battalion and an artillery section. 6. For Fuerteventura, a battalion of infantry.

The Tenerife and Las Palmas regiments will consist of 3 battalions, commanded respectively by an officer of the rank of major; each battalion will consist of 8 companies of the same nature as the Palma and Inca regiments of the Balearic Isles. The Orotava and Guia regiments will also consist of 3 battalions; each battalion will only consist of 4 companies, one of which will belong to the Regulars, one to the 1st, and two to the 2nd Reserve. The Las Palmas chasseur battalion will consist of 8 companies, two belonging to the Regulars, two to the 1st, and four to the 2nd Reserve. The Lanzarote, Fuerteventura, and Gomera-Hierro battalions will each consist of 4 companies, viz., one Regular, one 1st, and two 2nd Reserve. Half the places of captains and two-thirds of those of subaltern officers of the 2nd Reserve companies of the various infantry units will be filled by officers of the Reserve district of the Canaries. These officers belong to the paid Reserve. Troops belonging to artillery commands of the Tenerife and Grand Canary military governments will consist in each of these governments of :—1. Garrison troops, organised like those in the Balearic district. 2. A mountain artillery company. Troops belonging to the engineer commands of the Tenerife and Grand Canary military governments will consist in each of those military governments of a sapper and a telegraph company of the same composition as those in the Balearic Isles.

D. Recruiting and Reserves.—The recruiting of the troops of the Grand Canaries will be by districts. The islands will be divided for recruiting purposes into 8 areas, viz., Santa Cruz de Tenerife, Orotava, Las Palmas, Guia, Santa Cruz de las Palmas, San Sebastian, Arrecife, and Puerto de Cabras. Each of these areas will have a recruiting office similar to those to be established in the Balearic Isles. The attachment of recruits and of Reservists will be regulated under precisely the same conditions as those laid down for troops in the Balearics. The same will apply to Reserve officers. The peace effective of the troops of the Canary Islands will consist of 475 officers, 3,545 men, 21 salaried workmen, 863 horses and mules, 41 wagons (not including the engineer rolling stock), and 20 pack animals.

The decrees of the 11th and 20th August last are each accompanied by a ministerial circular fixing the conditions under which the above-mentioned reorganisation will be carried out. As a rule, the new units will, as far as possible, be formed from units of the same branch of the Service existing previously, and completed with the help of corps in the Peninsula, or formed from Peninsular units provisionally detached to the two groups of islands since the spring of the present year; a list attached to each of the two decrees mentioned above determines the Peninsular corps who are to help in carrying out the organisation of the new formations in the Balearic and Canary Islands

Military Reorganisation of North African Possessions.—A Royal Decree of the 1st September, 1904, has changed the military organisation of the Spanish possessions in North Africa, which is now as follows:—

A. Organisation of the Command.—The whole territory of these possessions is divided into 2 military governments, one of which consists of the garrison of Ceuta and its camp outside, and the other of the garrison of Melilla with the camp, and the Zaffarines, Alhucemas, and Peñon de Velez de la Gomera Islands. These two governments will be called *detached*, and at the head of each will be placed a general of division, having the same prerogatives as those of "captain-general" of a district, as well as those which specially appertain to the command of African garrisons. These general officers will respectively have the title of "Military Governor of Ceuta" and of "Military Governor of Melilla and of the small African garrisons." They will be inspectors of the troops placed under them, and each will have a brigadier-general as second-in-command. Military commandants, of field officer's rank, will be installed in the garrisons of the Zaffarines, Alhucemas, and Peñon de Velez de la Gomera.

B. Organisation of Duties.—To each of the military governments there will be attached a staff, artillery and engineer commands, a commissariat branch, a medical staff, a judge-advocate's department, and a military chaplaincy. The civil affairs will continue to be administered as formerly, with the exception of Melilla, where the functions of notary will in future be exercised by a lieutenant-judge-advocate of the 2nd class, and that of justice of the peace and of registrar by one of the 3rd class lieutenant-judge-advocates. The colonel commanding the artillery of each government will exercise at the same time the command of the troops of that branch of the Service in the garrison, or in corresponding places, and the direction of the artillery park; he will be given a secretary and 2 field officers, one of which will be in charge of the park details, and the other senior officer of the remaining artillery troops. The mountain battery

detached to Ceuta will only be attached to the artillery command for duty and discipline. The colonels commanding the engineers exercise at the same time the command of their troops and the direction of the technical duties of their branch of the Service. They will each have under them 2 field officers, one of whom will be responsible for the details of the command, and the other will officiate as senior officer with the troops. The head of the medical department of each military government will be at the same time principal medical officer of the garrison hospital and director of the government sanitary park. The general, second-in-command, in each military government will have at his disposal, as sub-inspector of troops, a secretariat, directed by an infantry lieut.-colonel.

C. Composition and Organisation of Troops.—1. Military Government of Ceuta. — An infantry regiment and a battalion detached from the Andalusian Chasseur Brigade; artillery troops of the Ceuta command and a mountain battery detached from the camp at Gibraltar; a sapper company; the Ceuta volunteer militia, consisting of a company of Moorish riflemen, a chasseur squadron, and a company of marines; a mixed garrison administrative artillery section (field and mountain); a foot medical section and an ambulance. 2. Military Government of Melilla and small African Garrisons.—An infantry regiment and a disciplinary battalion; a chasseur squadron; artillery belonging to the Melilla command, and including garrison troops and a mixed group of 2 batteries (1 field and 1 mountain); a sapper company; a mixed garrison administrative artillery section; a foot medical section. The Ceuta and Melilla infantry regiments will each consist of 3 battalions of Regulars of 4 companies each, and maintained at nearly war strength; the battalions will be commanded by lieut.-colonels. The troops belonging to the Ceuta and Melilla artillery commands will be composed of garrison troops organised into batteries in accordance with the work to be carried out, and in addition, in Melilla, of a mixed brigade division of 1 field and 1 mountain battery, the first sections of which will alone receive their full complement of men and horses. The engineers will be in charge of the garrison telegraph and the camp optical communications.

D. Recruiting and Reserves.—The cadres and men of the African corps, which are recruited annually, will be furnished from the Peninsular contingents. Those who are given leave in anticipation before completion of the 3 years' period of service, will continue to be included in their corps until they are drafted into the 1st Reserve. On being drafted into the 1st Reserve, the men will continue to be attached to those units in which they completed their Regular service, with the exception of those from infantry regiments, who will be drafted as Reservists into Peninsular corps. On transfer to the 2nd Reserve they will be indiscriminately drafted into the district dépôts, and will be utilised to keep the African corps up to strength after their mobilisation. Reserve officers residing in African garrisons, and who are unemployed, will be attached to the units of their area of the military government in which they reside.

The decree with regard to the new formations is accompanied by a ministerial circular fixing the conditions under which the new organisation will be carried out, and as a rule the new units will, as far as possible, be formed from units already existing of the same branch of the Service. The new effectives of the troops for Ceuta, Melilla, and the small African garrisons will be composed as follows:—305 officers, 7,325 men, 9 salaried workmen, 372 horses and mules, 57 wagons (not including engineer rolling stock), and 104 pack animals.

New Military Organisation of the Peninsula. — Simultaneously with the reorganisation of the forces of the Balearic and Canary Islands, the Minister of War, General Linares, introduced one, on the 17th July last, for a new military territorial distribution of the forces of the Peninsula. According to this distribution Spain is divided into 7 army corps districts, having their headquarters, in numerical order, at Madrid, Seville, Valencia, Barcelona, Saragossa, Burgos, and Valladolid. The former 8th District, with its headquarters at Corunna, will be changed into a Captain-General's command, and provisionally attached to the VIIth Army Corps. Finally, when the budgetary resources permit, it will serve as a basis for the formation of an VIIIth Army Corps.

Each army corps is composed of 2 divisions, 1 mixed engineer company (sappers and telegraphists), an artillery workmen's section and corps park. In addition a cavalry division of 2 brigades will form a portion of the 1st Army Corps, the IIInd, IVth, and VIth Army Corps each having a cavalry brigade in addition to the divisional cavalry. The other army corps will only have an independent cavalry regiment a-piece. The division consists of 2 infantry brigades of 2 regiments, 1 artillery and 1 cavalry regiment, and the necessary administrative and medical units. The Galician Division (VIIIth District) will have 3 infantry brigades, and, on mobilisation, will form the VIIth Army Corps with the permanent division of the latter. In addition to the troops made up into divisions, 3 foot chasseur brigades of 6 battalions each will be formed, when they will remain attached respectively to the 1st, IIInd, and IVth Army Corps. The recruiting and the mobilisation of the army corps will, as far as possible, be by districts. All departments, dépôts, parks, etc., will be established to conform to this necessity.

The infantry arm is organised into 58 line regiments of 3 battalions, two of which are Regulars, and one belongs to the 1st Reserve; into 18 Chasseur battalions of 5 companies, four of which belong to the Regulars and one to the 1st Reserve; and into 116 battalions of the 2nd Reserve. The line regiments will form 29 brigades of 2 regiments each, or 14 divisions, thirteen of which will have 2 brigades, and one 3. The 18 Chasseur battalions will form 3 brigades of 6 battalions. On mobilisation the 116 battalions of the 2nd Reserve will be grouped into 39 half brigades. This new organisation has entailed the creation of 2 line regiments, which have taken the numbers 57 and 58, and have been given the names of Vergara and Alcantara respectively, and are formed on the basis of the 3rd and 5th mountain Chasseur regiments. The 1st, 2nd, and 4th mountain battalions are converted into Chasseur battalions, bearing the numbers 16, 17, and 18, and named respectively Reus, Chiclana, and Talavera. The two first battalions of each regiment will be permanently organised; the third battalions will only have cadres in peace time, and on their lists will figure the men who have completed their Regular service in the two other battalions, that is to say, men of the 1st Reserve, who are in their fourth, fifth, or sixth year's service. The Reservists of the Chasseur battalions will be drafted into the 5th companies of their battalion, and on mobilisation will serve to reinforce the active companies. On transfer to the 2nd Reserve men will be attached to battalions of that Reserve which are quartered in the men's domiciliary district. The law distinguishes between four sorts of effectives for corps, viz.: budgetary effectives; reduced effectives to be fixed for certain periods of the year and meant to permit of the greatest possible number of men being called

to the colours during grand manœuvres; legal effectives; and, finally, war effectives.

For the requirements of recruiting and mobilisation, the Peninsula is divided into 54 recruiting areas, 41 of which correspond to each of the provinces. The provinces of Madrid, Seville, Valladolid, Oviedo, and Corunna will each have 2 recruiting areas, and Barcelona will have 3. The recruiting areas form 116 districts, each possessing a recruiting office and cadres for a battalion of the 2nd Reserve. Recruits drawing lots classifying them as belonging to the contingent will be inscribed in the district recruiting offices, on the registers of which will also be entered the names of young soldiers who are not immediately enrolled for budgetary reasons, of those who are put back, and of those who fail to appear. Men released, for reasons of any sort, from active service will be drafted into the dépôts, where they will remain until they have passed the age for obligatory military service, viz.: till past 33 years of age. Dépôt soldiers who have received some military training will, exceptionally, be drafted into battalions of the 2nd Reserve on entering on their seventh year of military service. At the time of mobilisation the effectives of the regular battalions will be completed, first, with men on unlimited furlough for excess of *personnel*; second, with men of the 3rd battalions, which in their turn will receive from dépôts the necessary number of recruits, commencing with those who have been trained.

As regards the cavalry, the changes are but slight. The 28 Regular regiments will have a fifth dépôt squadron which will carry out a similar rôle to that of the third battalions of infantry regiments. In peace time only the cadres of dépôt squadrons will be maintained, and their ranks will be filled by men who have completed their service in the regiment to which the squadron belongs and who belong to the 1st Reserve. Men of the 2nd Reserve will be drafted into Reserve dépôts, which number 14, and which, on mobilisation, will provide the necessary active *personnel* to regiments, and will serve for the formation of a certain number of Reserve regiments.

The number of field artillery units remains the same. There will still be 17 regiments—12 field; 1 called “light” horse artillery; 3 mountain, and 1 siege artillery. A mountain artillery brigade division is formed for the Camp at Gibraltar. Each field artillery regiment is composed of 2 brigade divisions: the first of 3 Q.F. batteries, and the second of two batteries armed with ordinary *matériel*; a 6th dépôt battery has merely cadres. The mountain artillery regiments consist of 6 Regular batteries and 1 dépôt one; the brigade division at the Camp at Gibraltar will have three batteries, 1 of which will be at Ceuta. The fortress artillery battalions are abolished, and in their place have been formed 7 garrison commands, with their headquarters at Cadiz, Algeciras, Cartagena, Barcelona, Pampeluna, St. Sebastian, and Ferrol. Seven workmen’s sections have also had to be formed for the army corps mobile parks. Artillery Reservists are first drafted into dépôt batteries, and afterwards into Reserve dépôts.

The engineers for the Peninsula will consist of: 7 mixed sapper and telegraph regiments, 1 pontoon regiment, 1 railway battalion, 1 topographic brigade, 1 telegraph company for the Madrid lines, 1 balloon company, 1 artificers’ company, and 7 Reserve dépôts. This new organisation has entailed the abolition of the telegraph battalion and the formation of 3 mixed regiments. The latter consists of 5 sapper, 1 telegraph, and 2 dépôt companies. On mobilisation each regiment will be divided into 2 formed bat-

battalions, the first by means of the 4 first sapper companies, the second through the fifth of these companies and the 2 dépôt companies. The telegraph company will be attached to one of the two battalions.

All this reorganisation came into force on the 1st December last.—*Revue Militaire Suisse* and *Revue Militaire des Armées Etrangères*.

WAR NOTES.

No events of any importance are reported by either the Japanese or Russians as having occurred on the Sha-ho during the past month. Events at Port Arthur have, however, been moving with startling rapidity. As stated in these notes in last month's JOURNAL, 203 Metre Hill was captured by the Japanese on the 30th November, and they apparently continued their attacks on the north and north-east front with success, for on the 18th December General Nogi reported that at 2.15 p.m. the Japanese blew up a large section of the parapet of the north fort of East Kee-Kwan-Shan. The Japanese troops immediately charged in, and a severe fight with hand grenades ensued. At 7 p.m. General Samejima led the Japanese reserves into the counter-scarp, and by a great charge succeeded in capturing the entire fort at 11.50 p.m. The Japanese captured five 9-cm. field guns, two machine guns, and a large quantity of ammunition. On the 28th December, adopting the same tactics, the besiegers at Port Arthur blew up the parapet in front of Erh-lung Fort, and afterwards delivered an assault which resulted in the capture of the whole fort the same night. In the Erh-lung Fort were captured four large calibre guns, seven small calibre guns, thirty 37-mm. guns, and two machine guns—43 pieces in all. Continuing their success on the 31st December, the Japanese blew up the Shung-shu Fort, and then made an assault, capturing the entire fort after an hour's fighting. A part of the garrison fled to the height south of the fort, while a number were buried under the *débris* of the parapet. A quantity of field and machine guns were captured in the fort. On the evening of the same day the Japanese blew up a portion of the old *enceinte* in front of the east fort of the Pau-lung-shan, and on the 1st January of this year followed up their success by capturing H Fort and a newly constructed fort on Pau-lung-shan, and, after overcoming a stubborn resistance, carried the heights south of Hou-san-yan-tao. On the same day the Japanese left and centre attacked the fort at Wantai, and, following up a heavy bombardment by a vigorous charge, captured the fort in the afternoon. In the evening General Nogi received a letter from General Stössel, the Russian commander of Port Arthur, stating that, being convinced of the futility of continuing the destruction of life, he proposed a meeting to discuss terms of surrender. General Nogi replied, agreeing to the proposal, and the meeting accordingly took place on the 2nd January, and after some hours' discussion the terms of capitulation proposed by General Nogi were accepted by the Russian commander. The terms of the capitulation signed on the 2nd January consisted of 11 articles, and provided that the whole fortress, ships, arms, ammunition, military buildings, *materiel*, and other property of the Russian Government should be surrendered. In case it was found that any of these objects had been destroyed after the signing of the capitulation it was to be con-

sidered annulled, and full liberty of action was, in that case, reserved to the Japanese Army. All plans of forts, torpedoes and mines, and military and naval officers' lists were to be given up. Soldiers, sailors, volunteers, and other officials were constituted prisoners; but in consideration of the brave defence they had made, military and naval officers and civil officials attached to the Services, were to be allowed to retain their arms, to keep private property of immediate necessity for daily life, and also to return to Russia on parole not to take, until after the close of the war, arms or action in opposition to Japan. The various forts not already captured were to be surrendered to the Japanese before noon on the 3rd January.

According to General Nogi's official despatch, the total number of the Russian garrison who surrendered at Port Arthur amounted to 8 generals, 4 Admirals, 57 colonels and majors, many other officers of lower rank, 22,434 rank and file of the Army, 4,500 rank and file of the Navy. It is not clear if the 15,000 or 16,000 sick and wounded in Port Arthur are included in these numbers or not. According to arrangements, the Russian garrison marched out with the honours of war on the 5th, and the Japanese marched into Port Arthur on the 8th January.

With the fall of Port Arthur and the complete destruction of the ships in the harbour, the Russian flag disappears, for the time being, from the waters of the Far East. It will be interesting to place on record Admiral Togo's historic but modest despatch to his Government on the 22nd of last month, in which he announces the close of the naval operations before the beleaguered port :—

" Since 203 Metre Hill was occupied," writes the Admiral, " by the gallant and desperate attack of the besieging Army, the bombardment of the enemy's squadron by siege and naval guns has become effective. In consequence, the "Poltava" and "Retvisan" were sunk, and subsequently the "Pobieda," "Peresviet," "Pallada," and "Bayan" were also sunk. The "Sevastopol" escaped the land bombardment, and left the harbour on the 9th inst., and anchored near Chen-Fao-Shan. She was attacked there continuously by our torpedo-boats and heavily damaged.

" The main strength of the enemy is completely crushed. Only the weak gun-boat "Otvazhny" and several destroyers remain afloat. In the circumstances our combined fleet has removed the unnecessary parts of the blockade, which has been maintained since the 1st May, and has arranged a closer watch for ships attempting to run the blockade, and a look-out for the remnant of the enemy's squadron.

" During the blockade we suffered from the enemy's mines, both laid and floating, from high seas, and from dense fogs. The "Miyako," "Yoshino," "Hatsuse," "Kaimon," "Heien," and "Saiyen" were sunk, and many gallant and loyal officers and men were killed; but we succeeded in maintaining the blockade. When the enemy emerged from the harbour our fleet successfully engaged their ships, and finally, by the valuable support of the besieging Army, succeeded in crushing nearly all the enemy's squadron.

" Our second squadron so heavily damaged the Vladivostok Squadron that it has since been unable to leave port.

" All this success is gratefully attributed to the brilliant virtue of our Emperor.

"During the blockade all the ships under my command have splendidly accomplished the work and duty assigned to them. It is especially to be noted that some were engaged in the difficult and risky task of blockading, others tirelessly accomplished the work of laying mines in the presence of the enemy, others, braving all dangers, were engaged in the work of clearing mines, and others were posted to watch the enemy and keep guard against the enemy's ships.

"Their combined work strongly contributed to the accomplishment of the blockade. I deem it my duty specially to mention for recognition the valuable service rendered by officers and men."

It may be as well, perhaps, to recapitulate here the ships which have been lost to Russia during the eleven months which have elapsed since the war began, and which, numerically at least, constituted a powerful squadron but little inferior in fighting strength to the Japanese:—

First-class battle-ships—"Tsarevitch" (disarmed at Kiao-Chau after action of 10th August); "Petropavlovsk" (sunk by a mine off Port Arthur, 13th April); "Retvisan," "Pobieda," "Poltava," "Peresvet," "Sevastopol" (all sunk at Port Arthur).

First-class armoured cruisers—"Bayan" (sunk at Port Arthur); "Rurik" (sunk in action, 14th August); "Gromoboi" and "Rossia" (badly damaged in action, 14th August, lying at Vladivostok).

First-class cruisers—"Varyag" (sunk at Chemulpho, 9th February); "Bogatyr" (at Vladivostok, badly damaged from striking on a rock); "Askold" (disarmed at Woosung, after action, 10th August); "Diana" (disarmed at Saigon, after action, 10th August); "Pallada" (sunk at Port Arthur).

Third-class cruisers—"Boyarin" (sunk by mine, 14th February); "Novik" (wrecked after action, 10th August); "Vsadnik," "Gaidamak," "Zabiaca," "Rasboinik," and "Djijidjit" (sunk in Port Arthur).

Submarine mine dépôt-ships — "Yenisei" (blown up while laying mines); "Amur" (sunk in Port Arthur).

Gun-boats — "Koreëtz" (destroyed at Chemulpho, 9th February); "Sivoutch" (destroyed at New-Chwang); "Mandjur" (disarmed at Shanghai); "Otvazhny," "Grosiashtchy," and "Gilyak" (destroyed at Port Arthur); "Gremiashtchy" (destroyed by a mine off Dalny).

The number of destroyers which the Russians had at Port Arthur has never been clearly stated, but the following are believed to have been accounted for, but the accuracy of the list and names of vessels is not guaranteed:—"Stereogutchi," "Silny," "Strashny," "Siasky," "Buiny," "Barakoff," "Ietirny," "Sesy," "Boiroi," "Storjevsky," "Raziatshти," (sunk in action or at Port Arthur); "Retshitelny" (captured at Chefoo, after battle, 10th August); "Burny" (wrecked off Snan-tung, after battle, 10th August); "Rastoropny" (blown up at Chefoo); "Grozovoi" (disarmed at Shanghai); "Bezupretshny" and Bezstratshny" disarmed at Kiao-chau, after action, 10th August); six allowed to escape at time of surrender of Port Arthur, and detained, the "Boiki" and "Smeli" at Kiao-chau, and the "Skori," "Vlasty," "Serditi," and "Statni" at Chefoo.

The most serious loss sustained by the Japanese was the destruction of the first-class battle-ship "Hatsuse" by a mine some ten miles off the Liao-ti-shang Promontory, on the 15th May, and the sinking, the follow-

ing night, of the fast cruiser "Yoshino," after collision in a fog with the "Kasuga." The coast-defence ship "Heien" (captured from the Chinese), and the cruisers "Miyako," "Kaimon," and "Saiyen" were sunk by striking on mines near Dalny. There have been persistent rumours that the first-class battle-ship "Yashima" was also, like the "Hatsuse," sunk in June by striking a mine near Dalny. It should be noted that Togo makes no mention of her as a complete loss, and all that can be said is that the Japanese authorities have never denied or confirmed the rumour. A telegram, however, published in Rome on the 8th inst., from Tokyo, sent by the Italian agency, throws some light on the matter, for it states that the battle-ship "Yashima," which was sunk by a mine, had at last been successfully raised and brought safely into dock, where her repairs were being energetically proceeded with. This would look as if she had been badly damaged by a mine, but had fortunately only sunk in shallow water or had been beached; and that so long as there was a chance of salvaging her, the Japanese preserved perfect silence on the matter. The fact that, as is clear now, in the battle of the 10th August, the Russians had six battle-ships to the Japanese four, shows the bad handling of the Russian ships in a worse light than ever.

NAVAL AND MILITARY CALENDAR.

DECEMBER, 1904.

- 1st (Th.) H.M.S. "Irresistible" recommissioned for Mediterranean.
- " " H.M.S. "Cornwall" commissioned at Devonport for Second Cruiser Squadron.
- " " H.M.S. "Cumberland" commissioned at Portsmouth for Second Cruiser Squadron.
- 2nd (F.) 20th Hussars left Egypt for England in the "Dunera."
- " " 2nd Bn. Royal West Kent Regiment arrived at Hong Kong from Ceylon in the "Avoca."
- " " A six hours' armistice took place at Port Arthur in order to bury the Japanese and Russian dead.
- 4th (S.) H.M.S. "Irresistible" left Sheerness for Mediterranean.
- 5th (M.) A Russian powder magazine south of Pai-yu-sha near Port Arthur, was exploded by the Japanese artillery fire.
- 6th (T.) The Japanese captured two hills near I-tzu-shan, Port Arthur, and agreed to a six hours' armistice to bury dead.
- 7th (W.) 1st Bn. Sherwood Foresters left Hong Kong for Singapore in the "Avoca."
- 8th (Th.) The Japanese totally destroyed the Russian battle-ships and cruisers at Port Arthur by artillery fire.
- 9th (F.) H.M.S. "Flora" arrived at Plymouth from Pacific.
- " " 1st Bn. The Buffs arrived in England from Aden in the "Sicilia."
- 10th (Sat.) Launch of first-class battle-ship "Britannia" at Portsmouth.
- 12th (M.) 1st Bn. Sherwood Foresters arrived at Singapore from Hong Kong in the "Avoca."
- 13th (T.) H.M.S. "Iris" paid off at Portsmouth.
- 14th (W.) H.M.S. "Gibraltar" commissioned at Portsmouth for Special Service Squadron.

- 14th (W.) 20th Hussars arrived in England from Egypt in the "Dunera."
 " " 1st Bn. Manchester Regiment left Singapore for India in the "Avoca."
 " " The British Mission to the Amir arrived at Cabul.
 15th (Th.) H.M.S. "Hermione" with "Iris's" crew arrived at Plymouth from East Indies.
 " " 2nd Bn. Royal Fusiliers arrived in India from England in the "Soudan."
 16th (F.) H.M.S. "Tribune" paid off at Chatham.
 19th (M.) The Japanese captured the northern fort of the East Kee-Kwon group Port Arthur, as well as 13 guns and ammunition.
 20th (T.) H.M.S. "Furious" arrived at Spithead from Mediterranean.
 " " 1st Bn. Manchester Regiment arrived in India from Singapore in the "Avoca."
 21st (W.) H.M.S. "Bulwark" arrived at Plymouth from the Mediterranean.
 " " H.M.S. "Pandora" paid off at Portsmouth from Mediterranean.
 22nd (Th.) The Japanese captured North and West Hou-san-yan-tao, off Pigeon Bay.
 25th (S.) General Nogi announced that all the Western defences of Port Arthur were in the hands of the Japanese.
 27th (Tu.) 1st Bn. Royal Fusiliers left India for England in the "Soudan."
 28th (W.) The Japanese captured Ehr-lung fort, sustaining 1,000 casualties. Two-thirds of the Russian garrison (500) were killed or wounded.
 29th (Th.) H.M.S. "Espiegle" arrived at Plymouth from China.
 30th (F.) 2nd Bn. Border Regiment left India for South Africa in the "Avoca."

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The mobility and consequently the strategical value of an Army in the field depends most of all upon the efficiency and sufficiency of its supply and transport services; because the ability of the troops to overcome the various obstacles to their progress, including the resistance of the enemy, increases or decreases as the men are well or ill supplied with the necessities of life and with ammunition. Conversely, the problem of supply, be it of commissariat or of ordnance stores, is always of greater or less complexity in accordance, not only with the character and facilities of the country and the nature of the operations in progress, but also with the manner in which those operations are conducted. It is only sometimes within the power of a general to reduce materially the inevitable difficulties connected with the supply of his army by accommodating his plans to the welfare of his transport, but it is always easy for him, by inconsiderately ordering his marches, to wear out the animals to no purpose, or to obstruct the convenient use of other means of transportation, and eventually to fail in obtaining the very strategical advantages for which he has thus been extravagantly or unintelligently striving. In a word, to know how to employ all kinds of transport economically and to the best advantage is one of the most important secrets of successful strategy; and next, after complete familiarity with the conditions under which the various classes of animals can perform the maximum of work with the minimum of exhaustion, it is of especial importance that animal transport should be homogeneous, because arrangements that are ideal for mules will be the death of oxen, and so on.

Seeing, then, that the supply and transport question is so potent a factor of every strategical problem, and that the methods employed for its solution must furthermore complicate or simplify the reduction of that factor to the most convenient denomination, it is natural that Lieut.-Colonel Le Mesurier should have followed rather closely the combatant operations of 1870-71 in order to show how those operations were affected by the questions of supply and transport, and similarly how the latter were influenced by the nature of the former.

A necessary preliminary to the investigation of the subject involved was to make clear to the reader the character of the systems that had prevailed in France and Germany previous to the outbreak of war, and the manner in which those rival organisations responded to the calls made upon them on mobilisation. The *Intendantur* of the Germans and the French *Intendance* are consequently described at some length, to the advantage of the *Intendantur*, both as regards previous preparation and actual performance. Having thus fully presented the initial situation, Lieut.-Colonel Le Mesurier proceeds to follow the operations of the war, ably dealing with the successive problems by which the officers responsible for supply services were confronted, how they dealt with these problems, and with what results. Parallel, or more or less analogous, examples from

the histories of other wars are freely and usefully interpolated, and amongst them a good many from the campaign against the Boers.

Having set about his task in the right way, and being thoroughly capable of performing it, Lieut.-Colonel Le Mesurier has produced an admirable work, which deserves to be adopted as a text-book, not only for supply and transport officers, but also for officers of the general staff, to whom will fall, in war, the duty of arranging the movements of troops, and who require therefore to learn how best to employ (from the supply and transport, as well as from other points of view) the available means for the attainment of the end in view. Lieut.-Colonel Le Mesurier is to be heartily congratulated upon his undeniable success.

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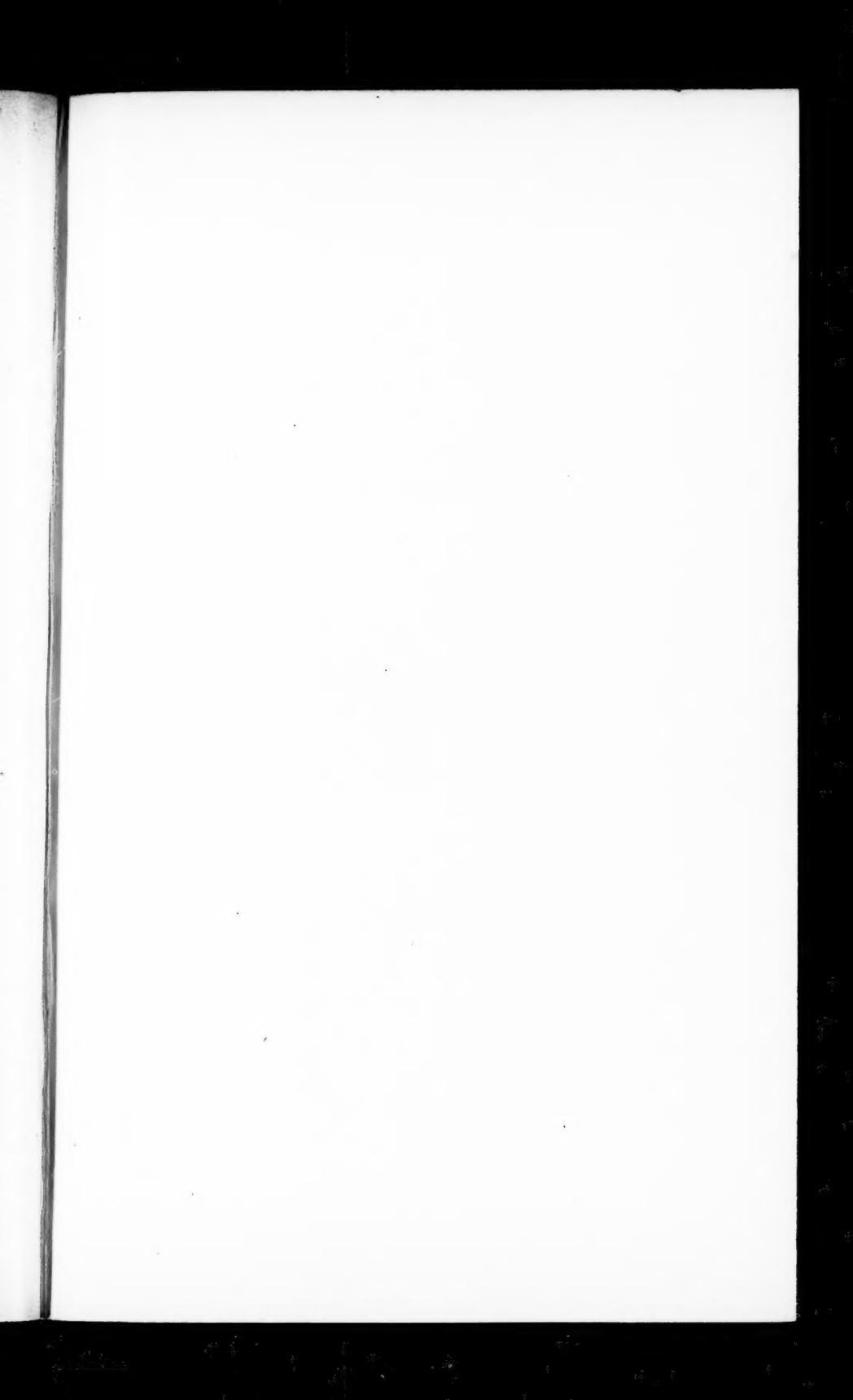
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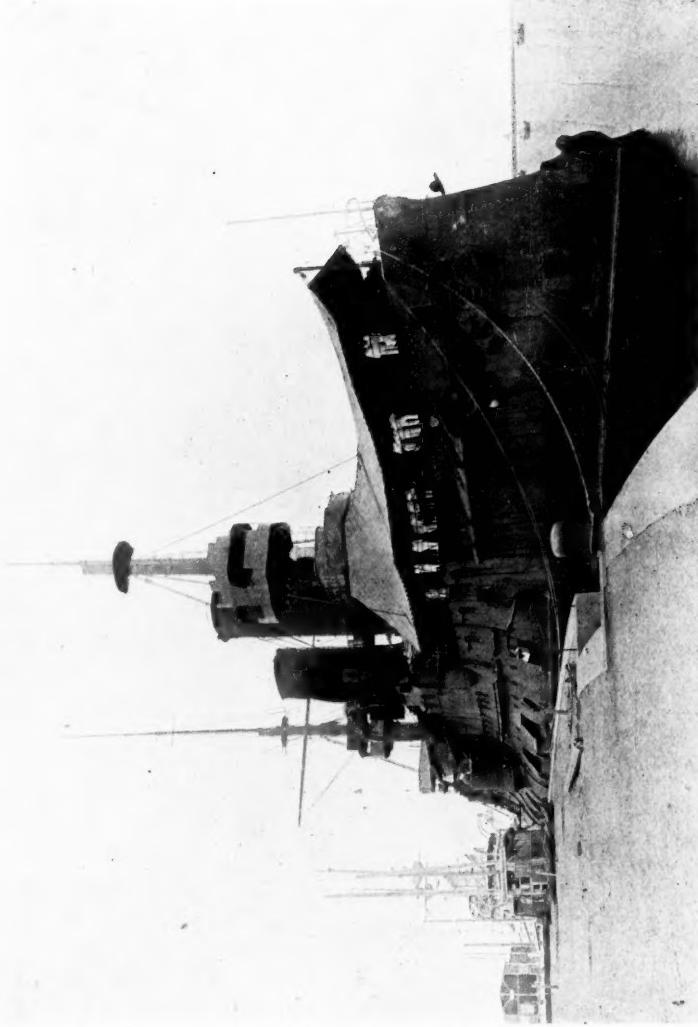
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